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Regional Wholesale Distribution Facilities For Blair County, Pennsylvania

Marketing Research Report No. 856

Agricultural Research Service
UNITED STATES DEPARTMENT OF AGRICULTURE

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PREFACE AND ACKNOWLEDGMENTS

This report describes wholesale food distribution facilities in Blair County, Pa., and recommends plans for modern, efficient facilities. The highlights of the study were given at a public meeting at Altoona, Pa., in February 1969; civic groups have used the data for planning improved facilities.

Appreciation is extended to the members of the food distribution firms and related wholesale businesses for their help in supplying the basic information on which this report is based. The Blair County Planning Commission, Redevelopment Authority, Penn Central Transportation Company, Peoples Natural Gas Company, Penn Electric Company, and real estate firms provided information on sites. Special appreciation is extended to Robert A. Halloran, Executive Director, Altoona Enterprises, Inc., for assisting in many details relating to the study and for providing office space and clerical help. The Food Distribution Center Steering Committee and subcommittees on site selection and finance provided valuable assistance. Funds for the study were provided by the Economic Development Administration, U.S. Department of Commerce. Robert C. MacGregor, Technical Assistance Specialist, and Anthony J. Dwyer, Economic Development Specialist, Economic Development Administration, provided helpful guidance and contacts with local groups during the study.

This study was conducted under the general supervision of Kenneth H. Brasfield, Chief, Marketing Facilities Development Branch, and William C. Crow, Director, Transportation and Facilities Research Division, Agricultural Research Service. The building designs, site layout, and estimates of construction costs were developed by Allison B. Lowstuter, architect.

This technical assistance study was accomplished by professional consultants under contract with the Economic Development Administration. The statements, findings, conclusions, recommendations, and other data in this report are solely those of the contractor and do not necessarily reflect the views of the Economic Development Administration.

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Regional Wholesale Distribution Facilities For Blair County, Pennsylvania

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SUMMARY

An estimated $81,000 annually in marketing costs could be saved with the development of a wholesale food distribution center in Altoona, Pa., for 14 food wholesalers. Additional savings probably would be made by five allied industry wholesalers as well as by one chain and one firm contemplating a branch wholesale business. The savings are based on estimated costs for handling, spoilage, deterioration, breakage, shrinkage, and rents in new facilities. This report provides guides for the location of 21 wholesale firms in a wholesale distribution center to serve the needs of Blair County and the surrounding area.

In 1967, 33 independent food wholesalers and four chainstores in the area received nearly 339,000 tons of food. Of this, about 71 percent arrived by truck and 29 percent by railroad. About 56 percent of the tonnage was distributed within Blair County, 39 percent in other parts of Pennsylvania, and the remaining 5 percent outside the State, principally in Maryland. Approximately one-third of this food originated in Pennsylvania. Nearly all the dairy and poultry products originated from within the State and the remaining food products came from other parts of the country.

The 14 independent food wholesalers needing new facilities handled about 46,000 tons of food in 1967. The annual costs of moving this tonnage through their facilities were estimated at more than $967,000. Some of these costs were excessive because of the type or location of wholesalers' facilities. Many of the buildings were not designed for food-handling operations, nor could they be adapted for use of modern materials-handling equipment. Many facilities did not have direct rail connections nor did they have docks at truck-bed height. Many firms operate in multistory facilities that require use of elevators to move food products. Some wholesale firms were located on narrow, busy streets, adding to the cost of receiving and distributing food. These factors also affected the amount of spoilage that occurred.

To accommodate the 21 wholesalers needing new facilities, the following buildings are suggested: Two multiple-occupancy buildings containing 39 units, with 117,000 square feet of first floor space for 10 wholesale firms, and 10 single-occupancy buildings containing 241,250 square feet of first floor space for three grocery wholesalers, one produce wholesaler, two frozen food wholesalers, and four dairy firms. In addition, 30 acres of land are provided for development of a food chain distribution warehouse. Space is also provided in the distribution center for a central energy plant for the heating and refrigeration needs of firms located here.

These facilities, with space for future expansion and for other wholesalers and allied industries that may wish to locate in the center in the future, would require about 150 acres of land. Three sites were evaluated: Watts Farm, Fort Fetter, and Barnhart. Advantages and disadvantages of each are outlined.

Investment costs of land and facilities, using the Fort Fetter site were estimated as follows: Groceries, $2,578,000; produce, $370,000; dairy products, $332,000; frozen foods, $1,122,000; meat, $535,000; and allied industries, $865,000. Total investment cost for the wholesale distribution center amounted to $5,802,000, excluding facilities for a central energy plant and a chain warehouse and expansion area.

If the distribution center is financed with funds obtained through the Industrial Development Act, rentals, or ownership costs, for the various types of facilities, ranging from $1.43 to $2.05 per square foot, would cover all operating costs of the market and pay for the facilities in 25 years. This example

does not preclude the possibility that a private developer might construct facilities on a leasehold arrangement. Regardless of the financing method projected, operating savings could be realized only if modern materials-handling procedures are used.

In addition to a reduction in marketing costs, benefits could accrue to farmers, retailers, wholesalers, market employees, transportation agencies, consumers, and the regional area. Operation of price-making and price-reflecting forces would be improved; rail and truck operations would be simplified; quality of food would be easier to maintain; sanitation problems would be reduced; the tax base and revenues could be increased through better use of market areas; and the value of land used for the new development would increase.

INTRODUCTION

Altoona Enterprises, Inc., requested technical assistance from the Economic Development Administration, U.S. Department of Commerce, on the economic feasibility of building and operating a wholesale distribution center for a 20-county area in central Pennsylvania and for three counties in western Maryland. The Economic Development Administration referred this request to the Transportation and Facilities Research Division of the Agricultural Research Service and provided the funds for the study.

The study was given impetus by an urban renewal project in Altoona which will rejuvenate a part of the downtown area. This project will displace the only group of wholesalers in the Altoona and Blair County area who are located together.

The Transportation and Facilities Research Division began its study in August 1968. All data relating to the amount of each commodity received by the wholesalers and the cost of handling the products from point of initial receipt through the various wholesale channels were obtained by personal interviews with the wholesalers. Additional data and statistics were obtained from the Blair County Planning Commission, Altoona Enterprises, Inc., and officials of the city, State, and Federal Governments. The data were obtained for calendar year 1967, the latest available data at the time of the study.

The study had the following objectives:

- To analyze the present wholesale food marketing situation in the Blair County area and to determine if the products handled by firms needing new facilities are of sufficient volume and variety to provide a nucleus for a new wholesale distribution center.
- To determine the major measurable costs of handling food products through firms needing new facilities.
- To develop a master plan for orderly future growth as well as designs for firms needing new facilities immediately and to evaluate possible sites for efficient wholesale marketing.
- To estimate the costs of land, facility construction, and operating expenses for the new facilities.
- To estimate probable savings and other benefits from suggested improvements.

ECONOMIC FACTORS AFFECTING FOOD MARKETING

Blair County, which includes Altoona, Pa., had a population of 137,270 in 1960.[1] The Blair County Planning Commission estimated the population at 139,100 in 1965 and projected a population of 145,414 in 1975. While total population declined from 139,514 in 1950 to 137,260 in 1960, local civic groups have been effective in reversing the population decline through attracting new industry.

Blair County is ideally situated for a distribution center for industrial and consumer goods. It is centrally located in Pennsylvania, on the main railway line, and at the crossroads of two major highways, U.S. Route 22 running east and west and U.S. Route 220 running north and south. Plans have been developed and land procured for the development of limited access highways to replace both the north-south and east-west highways. In 1963, Blair County had 196 wholesale establishments with annual sales of $130,419,000.[2]

FOOD MARKETING IN THE BLAIR COUNTY REGION

The county is an important agricultural and forestry area. Acreage in farms totaled 107,500 acres in 1966, and cash receipts from sale of agricultural products totaled $8,122,000.[3] More than half of the cash receipts from sale of agricultural products were from dairy products. Nearly two-

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[1] U.S. Bureau of the Census. U.S. CENSUS OF POPULATION, 1960. GENERAL, SOCIAL, AND ECONOMIC CHARACTERISTICS, PENNSYLVANIA. Final Report PC (1) 40C. 532 pp., 1961. U.S. Government Printing Office, Washington, D.C. 20402.

[2] U.S. Bureau of Census. CENSUS OF BUSINESS. Vol. 5 WHOLESALE TRADE AREA STATISTICS. 1966. U.S. Government Printing Office, Washington, D.C. 20402.

[3] Blair County Planning Commission. BLAIR COUNTY REPORT 5, Economy. 98 pp. 1967.

TABLE 1.—*Number of wholesalers and estimated volume of direct receipts, by method of transportation, Blair County, Pa., 1967*

Type of wholesaler	Wholesalers	Direct receipts [1]		
		Rail	Truck	Total
Independent:	*Number*	*Tons*	*Tons*	*Tons*
Groceries	9	4, 046	38, 059	42, 105
Fruits and vegetables	5	25, 110	31, 691	56, 801
Dairy products	8		9, 079	9, 079
Frozen foods, poultry and eggs [2]	5	156	26, 719	26, 875
Meat	6		9, 058	9, 058
Total independent	33	29, 312	114, 606	143, 918
Other [3]	4	68, 191	126, 640	194, 831
Grand total	37	97, 503	241, 246	338, 749

[1] Excludes intramarket transfers.
[2] Includes 3 frozen food wholesalers, 1 egg wholesaler, and 1 poultry wholesaler.
[3] Includes 1 chainstore warehouse in Blair County and 3 chains outside the county. Data are presented for comparison only.

thirds of the land area in the county, or an estimated 220,000 acres, is in commercial forests. The manufacturing industry has grown rapidly during the past decade. The number of manufacturing plants in Blair County increased from 126 in 1956 to 158 in 1966. The value of production also increased from $129.9 million to $302.8 million during this same period.

With the growing population and industrial development in the Blair County area, a planned wholesale distribution center is essential. The urban renewal project within Altoona provides an incentive to implement the development of needed facilities. If a wholesale distribution center is not developed soon, displaced wholesalers will relocate at scattered points throughout the county and thereby lose the benefits that can be achieved through better planned facilities with proper rail and highway access as well as economies in land acquisition and building construction.

Number and Type of Wholesalers

During this study, 33 wholesale food firms and one food chain were interviewed in Blair County. In addition, three food chains operated food stores in Blair County that were supplied from warehouses located a considerable distance outside the county. Food wholesalers in Bedford and Huntington Counties were also interviewed. These wholesalers, at the time of the study, were not interested in relocating their facilities in Blair County. Their general reaction was that Blair County was too far to move their existing business and too close for a branch warehouse.

The volume of direct receipts handled by all firms in Blair County in 1967 was nearly 339,000 tons. Table 1 shows the number of wholesalers by type and the estimated volume of direct receipts by method of transportation. The volume of product handled by one egg wholesaler and one poultry wholesaler is included with the three frozen food firms.

In addition to the direct receipts some food products are transferred among wholesalers. Such transfers result from occasional inventory shortages, need for items not carried ordinarily in inventory, or normal movement of food commodities among firms. In 1967, about 4,182 tons of food were transferred among wholesalers. Therefore, total volume, including chain stores, handled that year, was 342,931 tons made up of—

	Tons
Direct receipts	338, 749
Transfers between wholesalers	4, 182

Present Wholesale Food Facilities

Wholesalers handling food products in Blair County had facilities that ranged from modern single-story warehouses designed for wholesale operations to very old multistory buildings that were not designed for such uses. Wholesalers in these old buildings had to use excessive amounts of labor to receive, to store, and to ship food products. Construction of the buildings ranged from structural steel, concrete block, and brick, to wood frame and weatherboarding. Some of the warehouses used by food firms in the Blair County region are shown in figure 1.

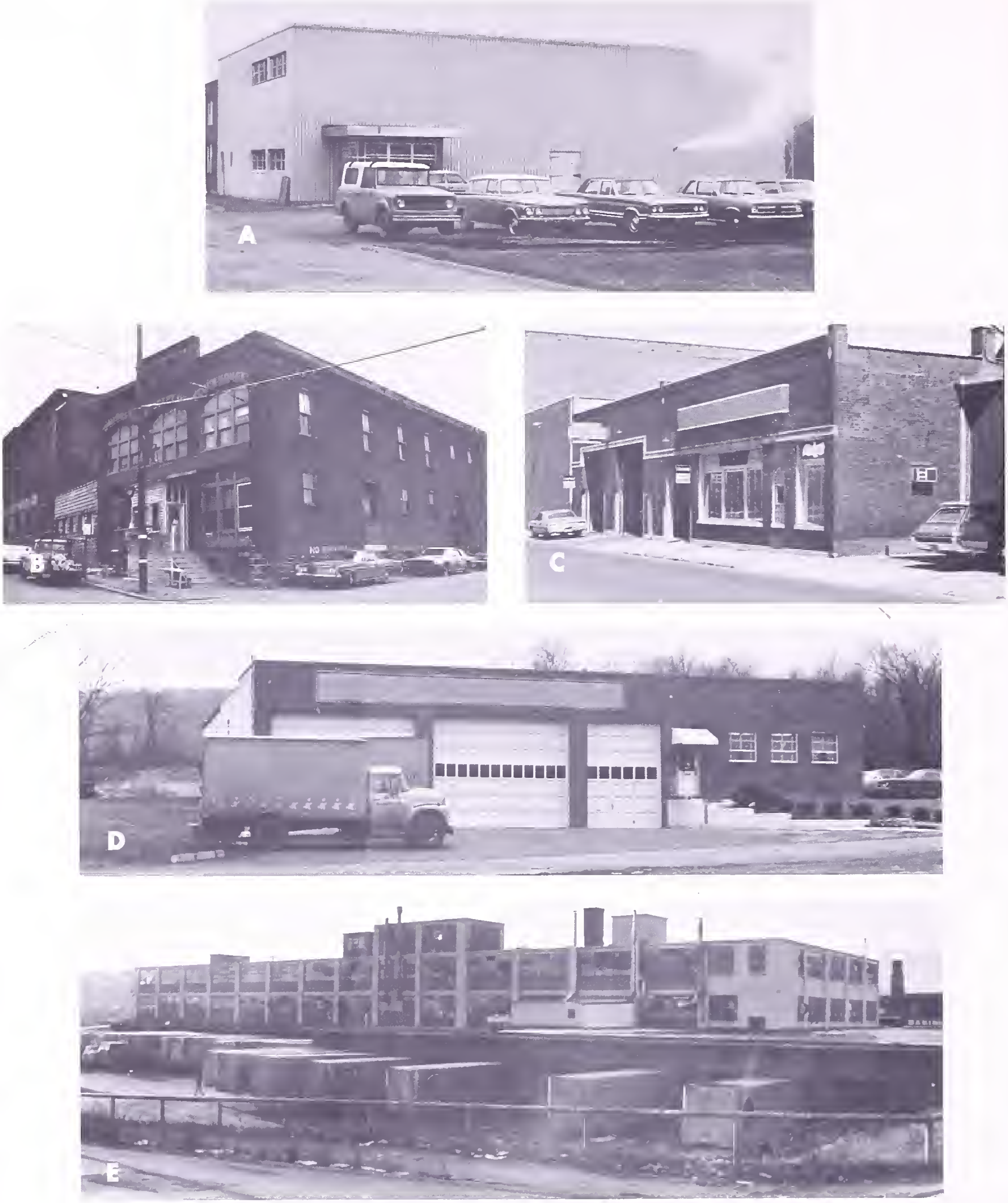

FIGURE 1.—Warehousing facilities used by five food firms in the Blair County region: *A*, A modernized building used by a meat processor; *B*, multistory building used by a grocery firm; *C*, frozen food warehouse; *D*, small grocery wholesale building; and *E*, chainstore warehouse.

A map is given in figure 2 showing the type and location of the 33 food firms and 1 food chain in Blair County that were in this study. In contrast to the pattern in most urban areas, food wholesale firms are not concentrated in one or more market centers but are scattered throughout the city of Altoona and in surrounding towns.

Groceries

Nine wholesale grocery firms were operating in Blair County at the time of the study. Two of these firms supplied affiliated retail stores or groups of retailers advertising under a group name. Three specialized in institutional food service operations, supplying hotels, restaurants, cafeterias, hospitals, schools, and other institutions. The remaining four firms supplied unaffiliated retailers or specialized in handling certain grocery items.

Four of the grocery firms were located in old multistory buildings. The low ceilings and poor layout of the buildings restricted the use of modern handling equipment. Two of the multistory grocery warehouses are shown in figure 3. Although the present facilities of two firms lacked adequate freezer and storage space, there was no room for expansion. None of the buildings had railroad house tracks. All four firms either had to pick up rail receipts at the team tracks themselves or had to pay a cartage firm to haul the merchandise to their warehouses. Parking space was insufficient for both employees and truckers for three of the four firms. Two of the four firms were located in the urban renewal area.

Five grocery firms operated out of one-floor warehouses and used modern handling equipment. These warehouses had sufficient space for the present volume of business handled by each of the five firms. Parking space was sufficient for employees and truckers and access to the various highways was good.

All nine grocery firms had 248,500 square feet of space. Of the total floor space, 28 percent was above the first floor. Five firms owned their facilities and four rented.

Fresh fruits and vegetables

The five fresh fruit and vegetable wholesalers were housed in several types of facilities. One firm occupied a new warehouse built specifically for its business. This warehouse was of masonry construction, one floor with 20 feet of clear stacking height, coolers, direct rail connections, adequate dock space at truck-bed level, and room to expand facilities as needed. Another firm was building a new warehouse. One firm did not have a rail siding and didn't need one for the firm's specialized banana ripening business.

One produce wholesaler was housed in a multistory warehouse in an urban renewal area in Altoona. This warehouse did not have direct rail connections and all receiving and shipping was done from the sidewalk. Figure 4 shows typical loading methods at such a facility.

Although modern materials-handling equipment could be used to a limited extent, the congested conditions in the warehouse resulted in excessive labor costs. Figure 5 shows crowded storage and loading areas with poor space utilization. Fresh fruits and vegetables were moved between floors in a slow-moving freight elevator. No expansion area was available for this firm and parking space was limited near the warehouse.

The five fruit and vegetable wholesalers had 84,524 square feet of floor space. Each wholesaler averaged 4,373 square feet of refrigerated space and 665 square feet of office space. Space other than first floor amounted to only 5 percent of the total space. Four firms owned their warehouses and one rented.

Dairy products

Eight wholesalers of dairy products operated in Blair County. Their facilities ranged from old multistory buildings (four firms) to modern one-floor buildings (four firms) designed to meet the needs of the particular firm. Figure 6 shows the two types of building used by these wholesalers. Six of the firms processed dairy products in their present facilities while two firms processed at other locations. Parking space for delivery trucks was limited at two firms.

In addition to providing retail stores and institutions with dairy products, all eight firms provided home delivery. Total floor space for all eight wholesalers was 63,800 square feet. Refrigerated space averaged nearly 2,250 square feet per wholesaler and office space, 250 square feet. Space other than first floor amounted to nearly 26 percent of the total floor space. All eight firms owned their facilities.

Frozen food, poultry, and eggs

Three frozen food wholesalers, one poultry wholesaler, and one egg wholesaler operated in Blair County. Warehouses of two frozen food wholesalers were old buildings that were not properly designed or had the available space to make best use of modern handling equipment. These buildings lacked sufficient dock space for receiving and shipping products. They were overcrowded and space was not available for expansion. Figure 7 shows two of the frozen food warehouses located in Altoona.

One frozen food wholesaler occupied a modern one-floor warehouse. This warehouse had high ceil-

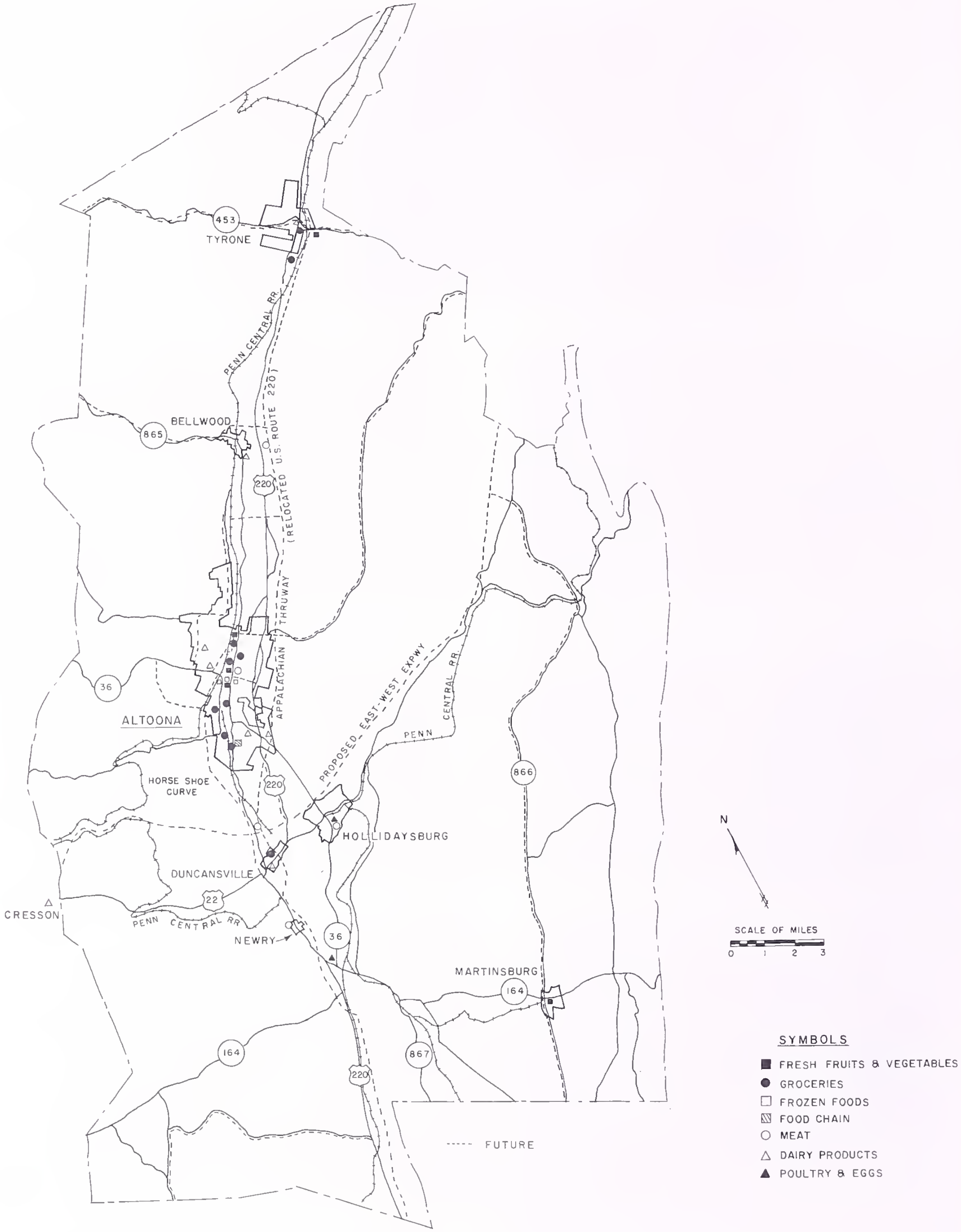

FIGURE 2.—Location of wholesale food firms in the Blair County area.

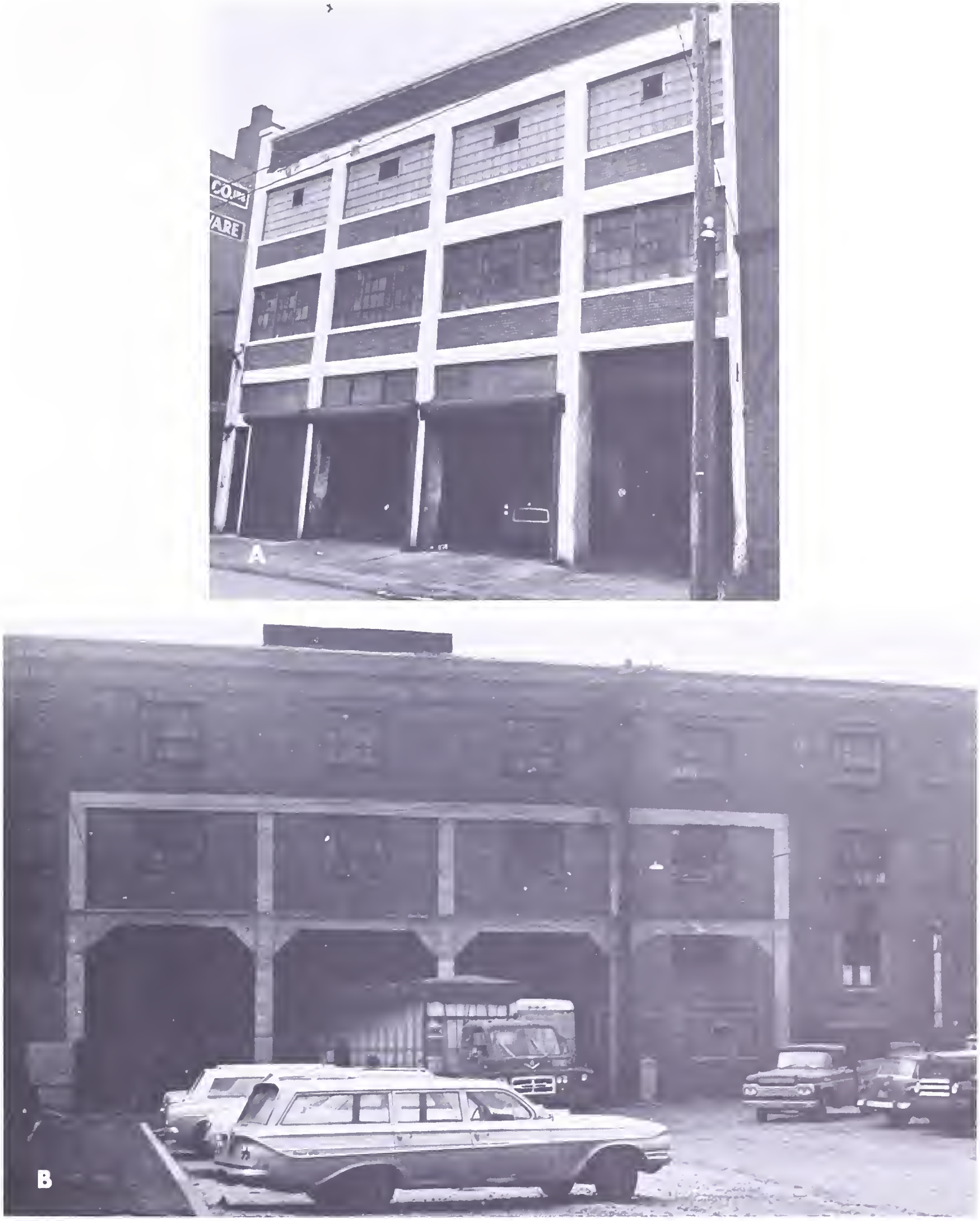

FIGURE 3.—Two multistory grocery warehouses (*A* and *B*) in congested downtown areas.

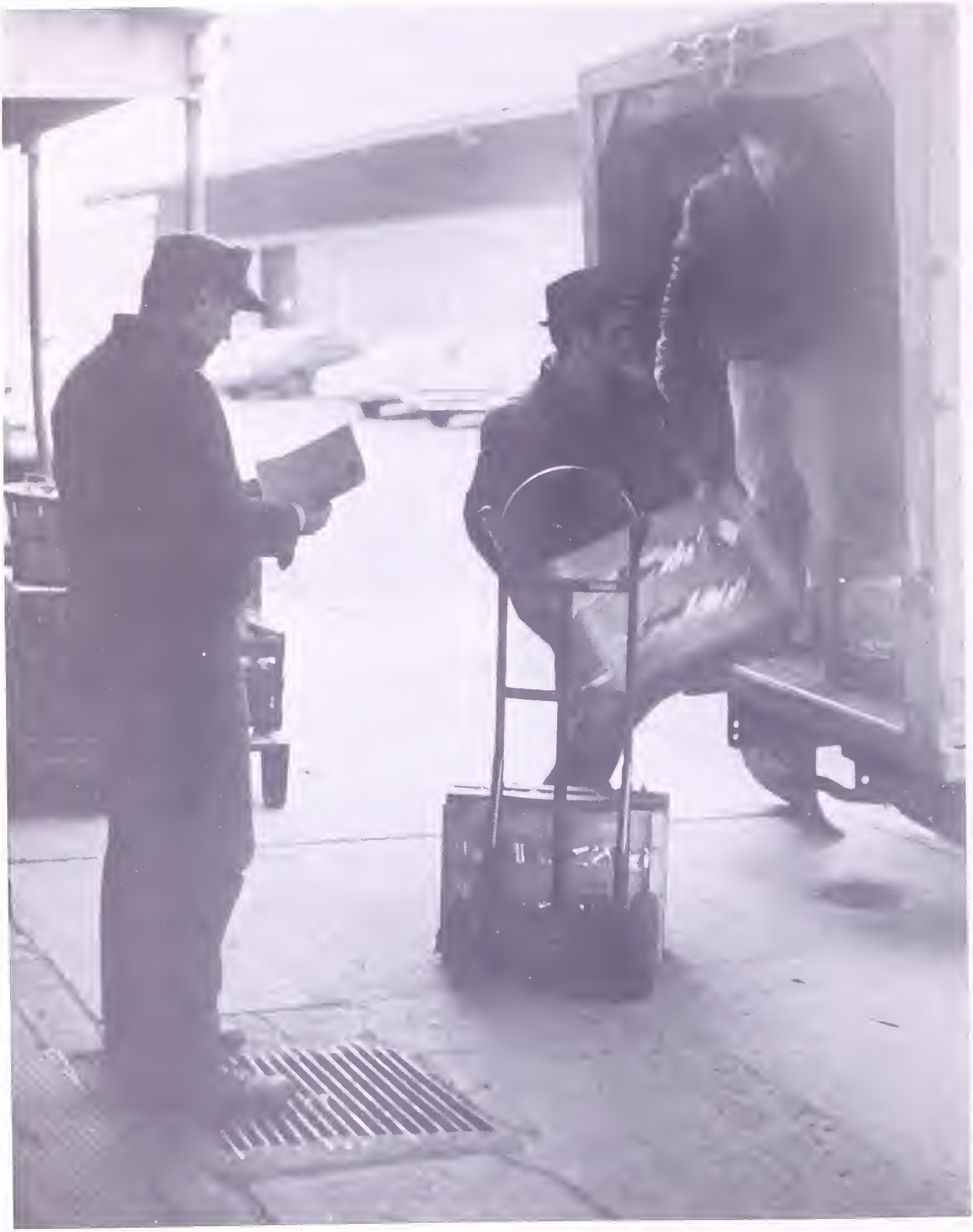

FIGURE 4.—Loading produce on a truck from the sidewalk requires excessive labor.

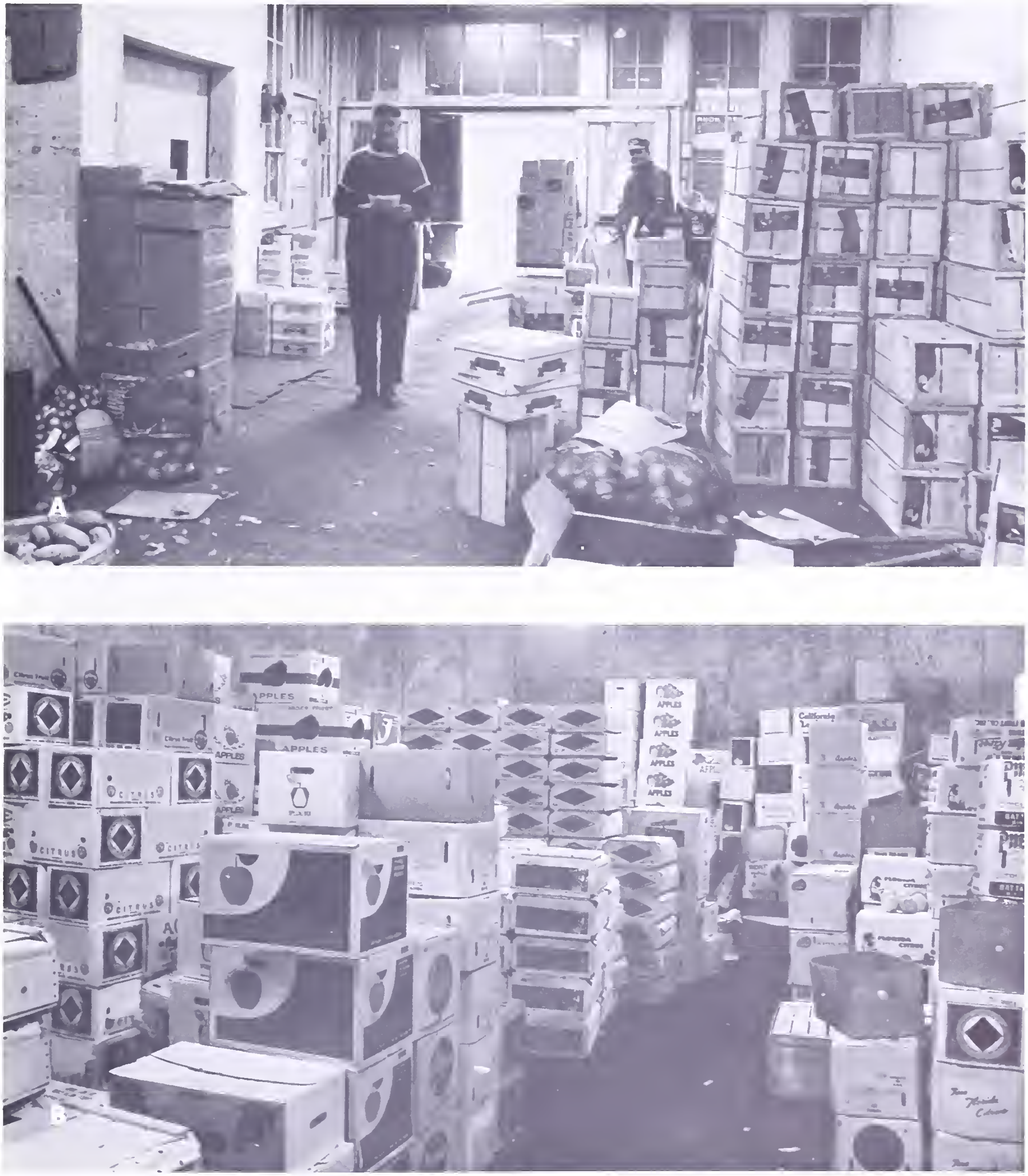

FIGURE 5.—Wholesale produce warehouse: *A*, Crowded storage and loading areas and *B*, poor space utilization.

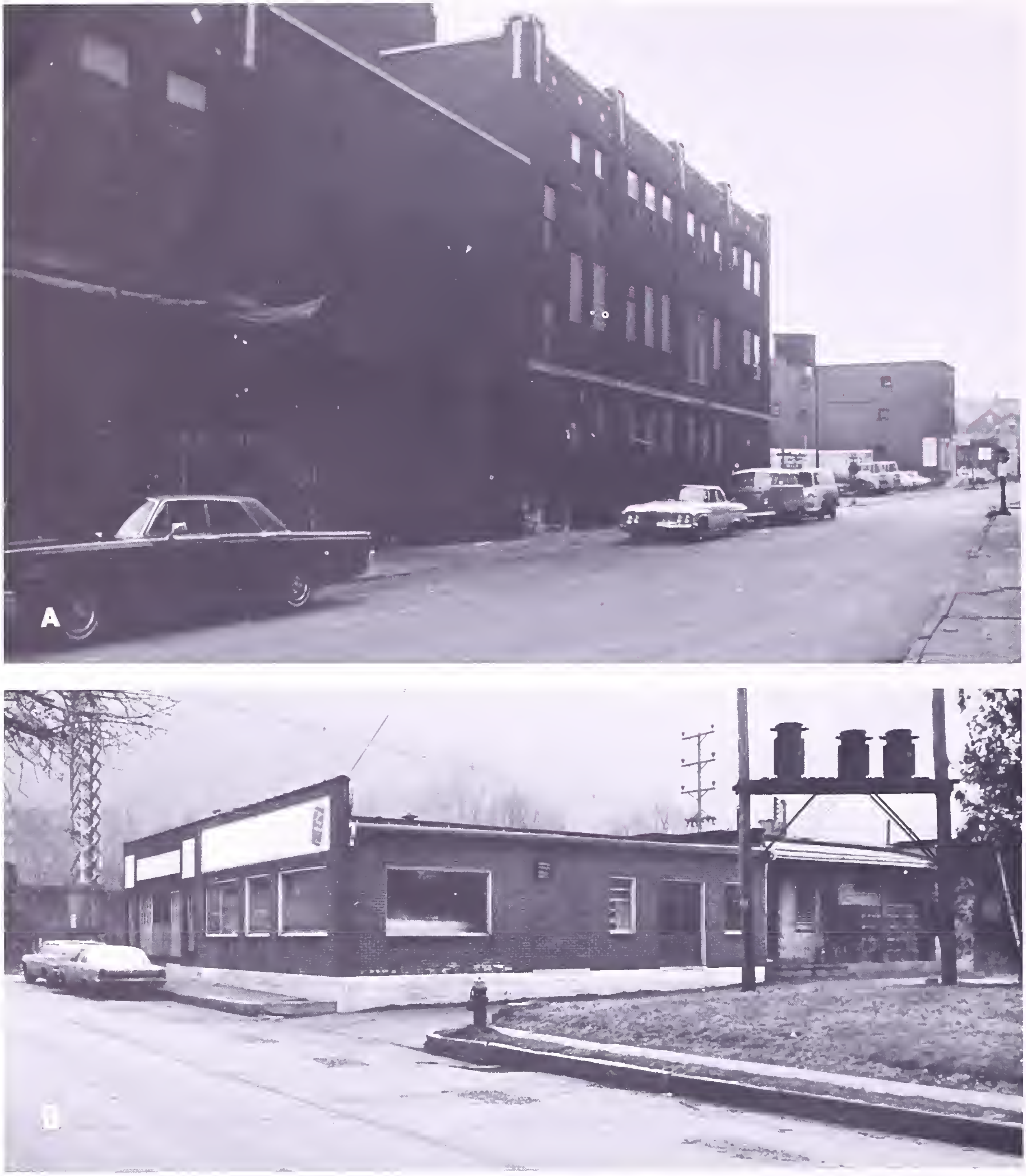

FIGURE 6.—Facilities of dairy wholesalers: *A*, A multistory dairy processing building, and *B*, an old one-story building used as a dairy processing facility.

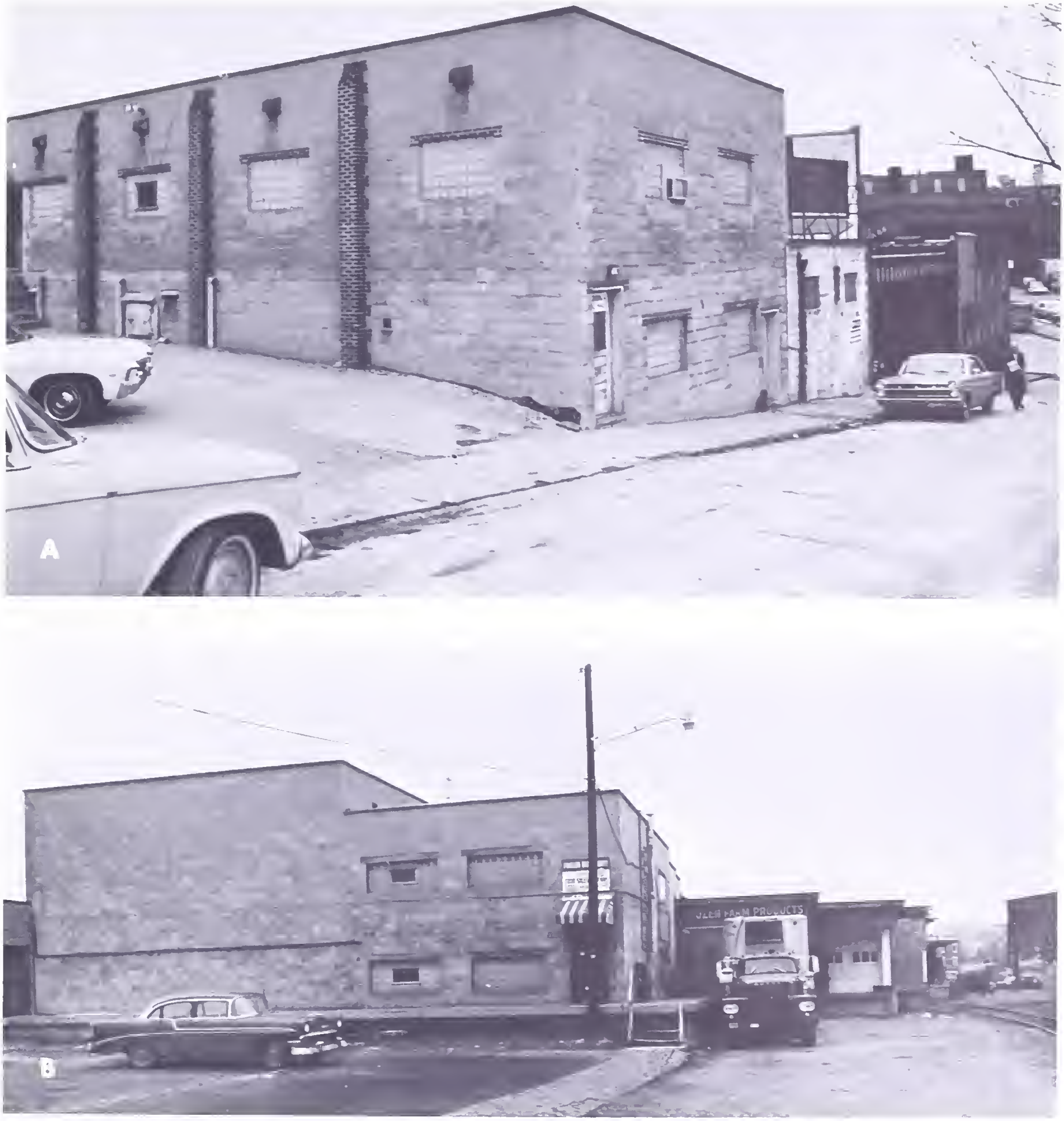

FIGURE 7.—Two frozen food warehouses (*A* and *B*) used by wholesalers in this study.

ings, area for expansion, and adequate docks for both receiving and shipping food products. The egg wholesaler also occupied relatively new facilities designed for receiving, processing, candling, cartoning, storing, and shipping of eggs. The poultry wholesaler, in addition to his wholesaling business, also processed poultry. This firm occupied facilities designed for its particular needs. Its warehouse was relatively new and modern methods were used in receiving, processing, storing, and shipping poultry products.

These five wholesalers occupied 137,309 square feet of floor space, with each wholesaler averaging 10,200 square feet of refrigerated space and 1,020 square feet of office space. Space other than first floor was 21 percent of the total space. All five wholesalers owned their facilities.

Meat

Six meat wholesalers were located in Blair County. These six firms processed meat for sale to retail stores and institutions. In general, processing meat means changing carcass meats into primal cuts, retail cuts, or other special meat products. In addition to wholesaling meat products, two firms slaughtered cattle and swine.

Two meat wholesalers occupied warehouses that were not designed for meat processing or wholesaling. The warehouses were old multistory buildings which would be difficult to renovate to meet recently enacted State requirements for meat-processing facilities.

The other meat wholesalers had facilities designed for their particular businesses. Figure 8 shows one of these modern meat-processing warehouses in Blair County. The buildings were one floor and space was available for expansion. Only a minimum amount of renovation would be necessary to meet State and Federal meat inspection requirements. One of these firms, however, must relocate as its warehouse is in the path of a proposed new highway.

Five of the meat wholesalers owned their facilities and one firm rented. The six wholesalers had 55,750 square feet of floor space of which 20,980 square feet is refrigerated. Office space averaged 375 square feet per firm. Space above

TABLE 2.—*Tenure status and space used by 33 independent wholesalers, Blair County, Pa., 1967* [1]

Type of wholesaler and space in warehouse	Tenure status		Space used				Average space per wholesaler
	Renters	Owners	Refrigerated	Office	Other	Total	
Groceries:	*Number*	*Number*	*Sq. ft.*	*Sq. ft.*	*Sq. ft.*	*Sq. ft.*	*Sq. ft.*
First floor			1, 800	4, 150	172, 550	178, 500	19, 833
Other floors				200	69, 800	70, 000	7, 778
Total	4	5	1, 800	4, 350	242, 350	248, 500	27, 611
Fruits and vegetables:							
First floor			21, 864	2, 500	55, 776	80, 140	16, 028
Other floors				884	3, 500	4, 384	877
Total	1	4	21, 864	3, 384	59, 276	84, 524	16, 905
Dairy products:							
First floor			17, 651	2, 000	27, 649	47, 300	5, 913
Other floors			320		16, 180	16, 500	2, 062
Total		8	17, 971	2, 000	43, 829	63, 800	7, 975
Frozen foods, poultry, and eggs:							
First floor			51, 999	2, 300	54, 210	108, 509	21, 702
Other floors				2, 800	26, 000	28, 800	5, 760
Total		5	51, 999	5, 100	80, 210	137, 309	27, 462
Meat:							
First floor			20, 980	2, 250	26, 270	49, 500	8, 250
Other floors					6, 250	6, 250	1, 042
Total	1	5	20, 980	2, 250	32, 520	55, 750	9, 292
All wholesalers:							
First floor			114, 294	13, 200	350, 955	478, 449	14, 498
Other floors			320	3, 884	107, 230	111, 434	3, 377
Total	6	27	114, 614	17, 084	458, 185	589, 883	17, 875

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[1] Excludes data for one food chain warehouse.

Figure 8.—Modern meat processing facility in Blair County.

the first floor was only 11 percent of the total floor space. Other data on space by type of wholesaler are shown in table 2.

Sources of Supply

Food handled by the 33 wholesalers in Blair County originated from local sources, other firms within the State, and sources outside the State. Table 3 shows the volume handled, a breakdown by source of supply, and interdealer movement.

In 1967, 28 percent of the products handled by grocery wholesalers originated from points within the State. A small part of the tonnage was transferred between wholesalers, generally to make up for item shortages. Groceries obtained from sources outside the State were hauled in by trucks, for the most part, from all parts of the country.

Producers within the State supplied about 27 percent of the fresh fruit and vegetable volume. A substantial part of this tonnage came from fresh fruit and vegetable markets in Pittsburgh and Philadelphia. Local production supplied most of the tonnage from within Blair County, particularly during the summer months. More than 44 percent of the direct receipts of fresh fruits and vegetables arrived by rail from producing areas. This percentage was higher than for any other commodity.

About 64 percent of the dairy products was supplied from producers within the county and more than 99 percent from producers within the State. Since Blair County, as well as surrounding counties, is a large producer of dairy products, the source of supply was nearby. Butter, margarine, and cheese were handled by dairy product wholesalers and grocery wholesalers along with their other commodities.

Nearly 27 percent of the frozen foods, poultry, and eggs originated from within the State. Pro-

Table 3.—*Source of food products handled by 33 independent wholesalers, Blair County, Pa., 1967*

Type of wholesaler	Source of supply			Total direct receipts	Inter-dealer transfer	Total volume handled [1]
	Blair County	Other Pennsylvania	Other			
	Tons	*Tons*	*Tons*	*Tons*	*Tons*	*Tons*
Groceries	1, 304	10, 523	30, 278	42, 105	27	42, 132
Fruits and vegetables	2, 840	12, 610	41, 351	56, 801	4, 155	60, 956
Dairy products	5, 792	3, 232	55	9, 079		9, 079
Frozen foods, poultry, and eggs		7, 158	19, 717	26, 875		26, 875
Meat	976	3, 703	4, 379	9, 058		9, 058
Total	10, 912	37, 226	95, 780	143, 918	4, 182	148, 100

[1] Direct receipts plus volume moved between wholesalers. Excludes the volume of 4 chains.

TABLE 4.—*Volume of food products delivered by wholesalers and picked up by customers, 33 wholesalers, Blair County, Pa., 1967*

Type of wholesaler	Delivered by wholesaler	Picked up by customer	Total handled
	Tons	*Tons*	*Tons*
Groceries	41, 532	573	42, 105
Fruits and vegetables	45, 956	10, 845	56, 801
Dairy products	9, 056	23	9, 079
Frozen foods, poultry, and eggs	25, 723	1, 152	26, 875
Meat	8, 646	412	9, 058
Total	130, 913	13, 005	143, 918

ducers within Pennsylvania supplied about 50 percent of the poultry and eggs and producers in Maryland and Virginia the rest. Only 14 percent of the frozen food products originated from within Pennsylvania. About 99 percent of the frozen food products arrived at the wholesaler warehouses by trucks.

More than 50 percent of the meat products was supplied from sources within Pennsylvania. Local slaughterers and meat packers in Blair County supplied more than 10 percent of the meat products and Midwestern producers the rest. All meat products were received by the wholesalers by trucks.

Distribution of Food Products

Wholesalers delivered more than 90 percent of their direct receipts to customers. This percentage ranged from 80 percent of the fresh fruits and vegetables to nearly 100 percent of the dairy products. Specific amounts delivered by wholesalers or picked up by customers are shown in table 4.

Most of the food wholesalers in Blair County distributed largely within a 50-mile radius of Altoona. However, some firms delivered beyond the 50-mile radius including parts of western Maryland and West Virginia. Of their total volume, 95 percent, or 136,049 tons, was distributed within Pennsylvania, ranging from 86 percent for frozen foods, poultry, and eggs to about 100 percent for dairy products and meats. Volumes distributed within Blair County and to the other areas are shown in table 5.

Of the total direct receipts, 56 percent was distributed within Blair County and 39 percent to other parts of Pennsylvania. Wholesalers delivered to the following towns outside Blair County: Huntington and Lewiston to the east, State College and Lock Haven to the north, Ebensburg and

TABLE 5.—*Distribution of food products by 33 wholesalers, by area and type of wholesaler, Blair County, Pa., 1967*

Type of wholesaler	Distributed within—				Distributed outside the State		Total volume handled
	Blair County		Other parts of Pennsylvania				
	Volume	Percentage of total	Volume	Percentage of total	Volume	Percentage of total	
	Tons	*Percent*	*Tons*	*Percent*	*Tons*	*Percent*	*Tons*
Groceries	23, 315	55	16, 965	40	1, 825	5	42, 105
Fruits and vegetables	32, 361	57	21, 963	39	2, 477	4	56, 801
Dairy products	6, 982	77	2, 097	23	(1)	(1)	9, 079
Frozen foods, poultry, and eggs	14, 332	53	8, 976	33	3, 567	14	26, 875
Meat	3, 250	36	5, 808	64	(1)	(1)	9, 058
Total or average	80, 240	56	55, 809	39	7, 869	5	143, 918

[1] Negligible amounts distributed outside the State.

Johnstown to the west, and Everett and Bedford to the south. They also delivered to Cumberland, Md. A larger part of the frozen food products was distributed to Cumberland than any of the other food products because one frozen food firm maintained a sales office there. These data indicate the importance of Blair County as a distribution center for food products.

NEED FOR NEW FACILITIES

Inadequate Facilities

Many food wholesalers in Blair County were housed in old buildings that were not suited for their present use. Although many firms had spent considerable amounts of money in the past to improve their facilities, they were still inadequate. Wholesalers and processors have found that inadequate buildings result in high operating costs and the resulting high costs to producers, wholesalers, and consumers.

Some firms were located in old multistory buildings that were inadequate for use of modern materials-handling equipment. They had low ceilings and space was poorly arranged. Storage areas were broken up into many small rooms. Many of these buildings had inadequate platform space and slow-moving freight elevators.

Although some wholesalers had relatively modern facilities and were not interested in relocating, others had inadequate facilities or had no room to expand. Some did not have direct rail connections, so they had the additional expense of moving their rail receipts from the team tracks to their warehouses.

Several firms were located in congested areas in the city and their activities often tied up nonmarket, as well as regular market, traffic. Other firms lacked adequate parking space for both customers and employees. Some had inadequate refrigeration, electrical wiring, sewerage, water, ventilation, and air circulation to meet their needs. Several firms will be displaced soon by urban redevelopment and highway improvement programs.

In all, wholesale food firms that need new facilities are five grocery wholesalers, one fruit and vegetable wholesaler, two frozen food firms, four dairy products firms, and three meat firms. In addition, five nonfood firms and one national food chain are interested in wholesale facilities in a distribution center. Thus, 21 firms are included in the initial plan for a wholesale distribution center.

Selected Costs Incurred by Wholesalers Needing New Facilities

A principal reason that 16 wholesale food firms, including one food chain, need new facilities is the high marketing costs of these firms in their present locations. These costs are handling and processing costs; spoilage, deterioration, breakage, and shrinkage costs: and rent. All these costs are measurable: they reflect the adequacy and efficiency of the facilities and operations of the food firm.

The cost data were collected from the firms needing new facilities. These data were used to develop average costs for wholesale operations included in the cost analysis. Cost information of certain types of wholesalers was combined to prevent disclosing confidential data.

Handling costs

Handling and processing costs are charges incurred from the point of arrival in Blair County through the wholesale facilities. When food products are produced in the study area, the charges are computed from the point when the merchandise enters the wholesale trade through the wholesale facilities. Since the tonnage carted was not significant and traffic congestion was not a major problem, these costs are grouped with interdealer transfers under handling and processing costs.

Handling included all receiving, unloading, processing, and moving commodities into and within warehouses and loading them onto delivery trucks. Handling within the warehouse may include checking the receipts, moving the commodities to storage, order selection, checking, truck loading, and processing. Supervisory costs and costs of electric lighting, water, heat, advertising, selling, and telephone, which do not depend on the type of facility, were not included.

Handling costs indicate the number of operations performed. These costs vary considerably among different food groups. Meat with a high handling cost reflects the considerable processing associated with this commodity. Fruits and vegetables and frozen foods, on the other hand, require almost no processing and have a low cost per ton. Processing costs among grocery firms are such that they are not expected to be affected by a move to a new facility, and for this reason are excluded. Processing charges have been excluded for dairy firms also, since only a few firms presently process their commodities and most of these firms have indicated that they will discontinue doing so when they move.

In 1967, handling costs for 45,947 tons of food products by 14 firms needing new facilities totaled $608,504, or $13.24 per ton.

TABLE 6.—*Selected annual costs in the wholesaling of food products for 14 independent wholesale firms needing new facilities, Altoona, Pa., 1967* [1]

Type of wholesaler	Total volume handled in 1967	Handling cost		Spoilage, deterioration, breakage, and shrinkage cost		Rent [2]		Total selected costs	
		Per ton	Total	Per ton	Total	Per ton	Total	Per ton	Total
	Tons	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Groceries	16, 670	9. 48	158, 032	3. 55	59, 200	3. 01	50, 200	16. 04	267, 432
Fresh fruits and vegetables and frozen foods [3]	23, 835	10. 42	248, 344	7. 22	172, 020	2. 06	49, 100	19. 70	469, 464
Dairy products	3, 794	8. 87	33, 653	(4)	(4)	3. 88	14, 700	12. 74	48, 353
Meat	1, 648	[5] 102. 23	[5] 168, 475	[6] 1. 82	[6] 3, 000	6. 43	10, 600	110. 48	182, 075
Total or average	45, 947	13. 24	608, 504	5. 10	234, 220	2. 71	124, 600	21. 05	967, 324

[1] Excludes data for one food chain warehouse and one firm establishing a branch business.
[2] Includes rental value when facilities are owned.
[3] Combined to avoid revealing confidential data.
[4] None reported.
[5] Includes processing. Meat firms in Altoona process significant parts of their total volume for retail sale.
[6] Includes loss in processing.

Spoilage, deterioration, breakage, and shrinkage costs

Spoilage, deterioration, breakage, and shrinkage were costly to food firms with inadequate refrigerated space. In addition, frequent manual handling of products increased breakage and deterioration losses. Costs were computed from estimates submitted by the firms needing new facilities and averaged $5.10 per ton for all food handled (table 6).

Rental costs

Present rental arrangements were discussed with the firms needing new facilities. If the firms were renting, their actual charges were used. If the firms owned their facilities, an estimated rental cost was used, which was based on the actual rents of similar facilities in the area as well as estimates made by the particular firms concerned.

The total annual rent or rental value for 14 of the firms needing new facilities was $124,600 in 1967, or $2.71 per ton of product handled (table 6).

Summary of selected costs

The selected costs of moving all commodities through firms needing new facilities averaged $21.05 per ton. The highest costs for all commodities were in the handling operations (table 6).

Other Deficiencies

Long operating hours, inconveniences caused by inadequate facilities, substandard sanitation, poor working conditions, and the lack of adequate safety precautions—all add to the total cost of moving food products through wholesale food facilities for the firms needing new facilities. Adequate police and fire protection are also necessary requirements that are affected by the kinds of marketing facilities and their location.

FACTORS TO CONSIDER IN PLANNING A DISTRIBUTION CENTER

Important factors to consider in planning for a food distribution center are completeness, adequate facilities, suitable arrangement, proper location, reasonable land cost, and sound management or organization.

A wholesale distribution center should accommodate a wide range of wholesalers and processors to best serve the food industry and the public. The center should be open to all types of food wholesalers and, where practicable, to related wholesale firms or manufacturers. All transportation agencies should have access to the center on an equal basis. Not all firms will relocate their wholesale facilities at the same time and land should be set aside for their future relocation.

Buildings must be designed to meet the requirements of each type of wholesaler or processor who will be housed there. Different types of buildings will be required for firms with large and small volumes dealing in the same commodity. The buildings should also reflect the particular needs of individual firms.

The food industry is changing rapidly and methods of handling merchandise are changing. Each type of wholesale facility should be designed so it can be modified or expanded to meet future conditions. The buildings should have functional design, should be as inexpensive as possible, and should be constructed to withstand heavy use.

In developing a wholesale distribution center, special care should be given to arranging the facilities on a given site to facilitate maximum efficiency in the marketing functions. Wholesalers in the same commodity should be located together to facilitate movement among firms and for use of common services. Service facilities such as refrigerated warehouses should be located strategically in the center so that they can serve both the market and customers located at distant points.

Several factors should be considered in selecting a proper location for a food distribution center. The site must be accessible by rail and near major highways with access to major arterial streets. In addition, it should be as near as possible to the center of retail distribution to reduce the time required for deliveries. These factors are essential to all wholesalers regardless of the commodities handled.

In the development of a distribution center, sufficient land should be acquired at the time of initial purchase. In appraising the cost of land, the acquisition cost and the cost of placing the land in condition to build should be considered. Sufficient land should be allocated for expansion of facilities initially built, as well as for the eventual relocation of other food wholesalers and allied industries who may wish to move to the center in the future.

Good management is essential in a new market. The management should be strong enough to assist the firms in the center in adhering to health, traffic, and market regulations. It should not discriminate against any wholesaler, buyer, or any form of transportation or delivery of products from any location and at the same time keep cost down. It should allow the firms in the market as much individual initiative as possible within the framework of good business practices.

FACILITIES NEEDED FOR A WHOLESALE DISTRIBUTION CENTER

The facilities recommended for a wholesale distribution center are for 16 food firms and five associated firms. Most of these firms stated that they were interested in new facilities. A few were included in the plans even though they showed no interest in new facilities because their present facilities were not suitable for their operations. The inadequacy of their facilities will probably force them to relocate within the near future.

The actual facilities planned for in a wholesale distribution center should be determined by the number of responsible firms who would sign firm leases or who would construct buildings in the center. This precaution is necessary to prevent overbuilding and underbuilding to insure occupancy of the facilities constructed.

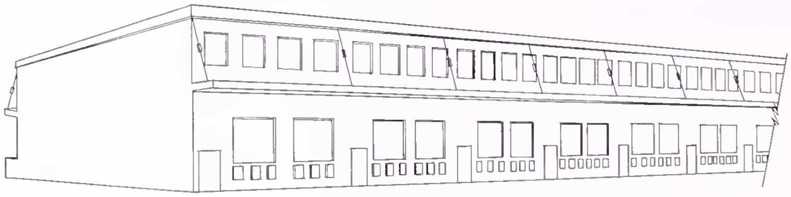
Some firms would not be expected to relocate at the outset because they already have modern, well-located structures. However, even though their facilities are new, the rapidly changing aspects of food merchandising may eventually induce them to seek space in the distribution center. Other firms, because of present leases and other considerations, could ask to be included in the distribution center at a later date. Consequently, facilities other than those included in this report may be needed.

Two basic types of buildings are needed for firms locating in the center—multiple-occupancy buildings and single-occupancy buildings. Small-volume firms can be housed together in the multiple-occupancy buildings and large-volume firms in single-occupancy buildings.

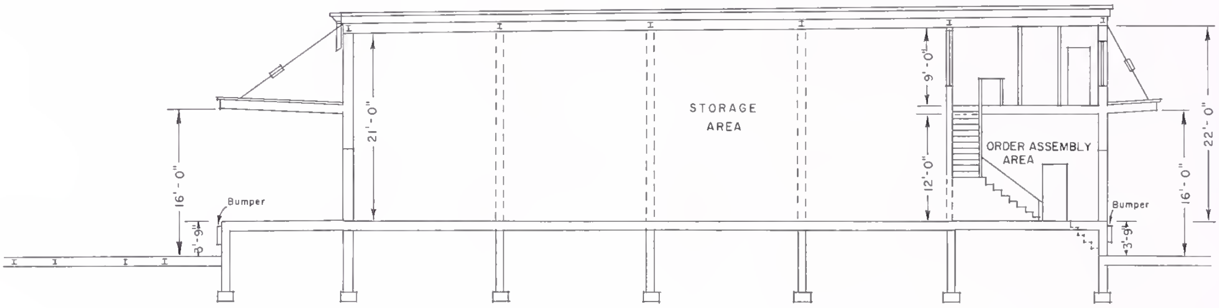
Multiple-Occupancy Buildings

A multiple-occupancy building consists of a row of individual units with a single-story warehousing area and a second floor or mezzanine for offices. Ten wholesalers needing new facilities—three meat firms, two wholesale grocery firms, and five allied industrial firms—would be housed in two such buildings. These buildings with 117,000 square feet of first floor space and 19,890 square feet of mezzanine would be divided into 39 units. Each unit will have a partial mezzanine and be designed to allow for adjustments of space among firms. Thus, one unit may meet the need of a small-volume wholesaler while a larger volume firm may require much more space. Figure 9 shows a perspective of the multiple-occupancy building.

For the volumes of products handled and types of operations performed by these firms, each unit should be 30 feet wide and 100 feet deep, with a 14-foot-wide rear platform. The ceiling height should be 22 feet at the front sloping to 21 feet at the rear. The floor of the unit should be 45 inches above grade. A mezzanine, 30 feet wide and 17 feet deep, should be provided at the front of each unit for restrooms and offices. The area be-



PERSPECTIVE



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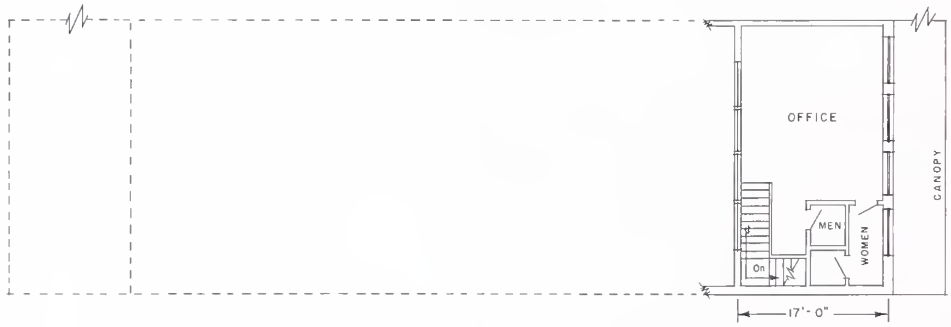
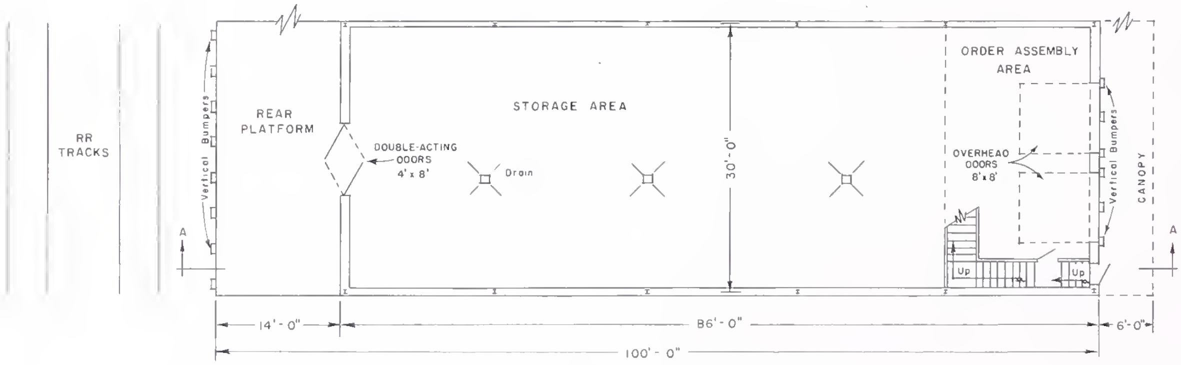


MEZZANINE PLAN



FIRST FLOOR PLAN

END UNIT

Figure 9.—Layout and perspective of a unit of a multiple-occupancy building.

neath the mezzanine could be used for order assembly and order checking.

Each unit will contain 2,580 square feet of first floor space, 420 square feet of rear-platform space, and 510 square feet of mezzanine space, for a total of 3,510 square feet of floor space.

House tracks should be provided in the rear of the buildings for wholesalers who receive products by railroad. These tracks should be recessed in the pavement to permit trucks access to the rear platform and to facilitate street cleaning. Canopies should be installed over the front and rear platforms 16 feet above the grade to protect workers and products during loading and unloading during inclement weather. The front canopy should be 6 feet wide. Both front and back should be cantilevered. Steel guy rods should be installed to give additional support to the canopies and to provide clear operating space beneath. Surface of platforms should be made of nonskid concrete and have about a 1 percent slope to the street to carry off water.

The front of each unit should have two doorways 45 inches above the pavement at truck-bed height with overhead doors 8 feet wide and 8 feet high. A walk-in door at street level would permit easy access for workers and buyers to the first floor and mezzanine.

Interior layout of individual units should be designed to meet the needs of individual wholesalers. Wholesalers who process, for example, could install a second floor for processing. Those using pallet racks for high stacking of products by forklift trucks, such as for fresh fruits and vegetables, require a maximum amount of ceiling height. The main floor, therefore, should be designed to provide a live load of 400 pounds per square foot and the mezzanine for a live load of 100 pounds per square foot. First floor surfaces should be made of nonskid concrete and sloped to floor drains.

Good interior lighting is essential. For general office work such as would be done on the mezzanine, 20 foot-candles of light intensity (unit of measure for illumination) with supplementary individual desk lighting is generally satisfactory. For the storage areas, about 15 foot-candles of light intensity should be used.[4] In the warehouse, light fixtures should be placed directly over aisles for efficient and accurate order selection. Central controls for lights should be conveniently located.

Partitions between individual wholesalers should be made from waterproof and incombustible materials. They should be nonweight bearing to allow for future space adjustments between firms. A partition should be installed across the back platform between the grocery and meat wholesalers when they occupy the same multiple-occupancy building.

Some general recommendations for developing interior layouts and mechanized handling systems are found in the appendix.

Single-Occupancy Buildings

The needs of large-volume firms moving into a new wholesale distribution center could be met with 10 single-occupancy buildings totaling 241,250 square feet. In addition, a 30-acre area is set aside for one food chain to build a food distribution warehouse. These buildings would house three wholesale grocery firms, one frozen food storage firm, one frozen food wholesaler, one produce wholesaler, and four dairy firms. The single-occupancy buildings would range in size from 2,750 square feet to 72,000 square feet.

Although the actual design of each of the single-occupancy buildings should be adapted to the individual tenant's requirements, suggestions as to their shape have been incorporated into the master plan.

The management of the proposed wholesale distribution center should consider carefully the use of a central energy plant. Proposals should be obtained from both natural gas and electric companies that service the Blair County area. Views of perspective tenants who would be large users of energy should also be considered. Space is provided in the master plan for a central energy plant.

Whether a central energy plant is used or not, the refrigeration requirements for each wholesaler in the market should be determined before construction plans are completed. This will facilitate the proper installation of cooler and freezer insulation during construction. Coolers and freezers are not included in the master plans because refrigeration requirements vary.

In multiple-occupancy buildings, refrigeration equipment, if a central energy plant is not used, could be placed in a utility tunnel under the rear platform. This tunnel should extend the length of the platform, should have at least 9 feet of inside clearance from floor to ceiling, and should have an access door at one end.

Streets and Parking Areas

All major streets in the food center should be paved to carry heavy vehicular traffic and to provide drainage away from the buildings to drains in the streets. Paving could be of a blacktop combination that would consist of a foundation of 7 inches of gravel or crushed rock, 4 inches of macadam base, and 2 inches of asphaltic concrete surface. Concrete paving 6 inches thick is suggested for areas where oil or gasoline drippings would be excessive, because of the their softening or dissolving effect on asphalt.

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[4] All lighting estimates are based on information from the Illuminating Engineering Society Lighting Handbook, 1966; these estimates should be considered only as guides to specific lighting requirements of individual firms.

The 200-foot width recommended for streets between facing buildings provides space for large trucks to maneuver and park perpendicular to the platforms on both sides of the street. Access or cross streets 80 feet wide should be provided to facilitate efficient traffic flow and to permit rapid access to the various sections of the market.

Parking areas are provided near buildings for convenience but should not interfere with traffic flow or loading and unloading operations. To save space and insure orderly parking, all parking slots should be lined with a heavy-duty paint on the blacktop surface. Parking requirements should be determined at the outset and expansion areas should be provided. Parking is critical and should be considered an integral part of the market.

Central Energy Plant

The use of central energy plants to provide refrigeration and heat is a relatively new concept. With a central energy plant, a utility company would provide refrigeration and heat to individual wholesalers or processors in the distribution center. The users would be billed on a metered basis. Findings from one study by the Department showed that a central refrigeration plant will have lower ownership and operating costs than individual units.[5] Probably heating would also be less costly with a central plant.

Some of the advantages of central energy plants are (1) elimination of capital investment in heating and refrigeration equipment, (2) elimination of the need to maintain and repair the equipment, and (3) lower costs.

Utility companies have indicated that they would build their own facility, provide and maintain their own heating and refrigeration equipment, and install the necessary pipelines to wholesaler facilities. They have indicated, however, that this service depends on whether they can supply the wholesalers with heat and refrigeration at less cost than the wholesalers could with their own equipment and still make a profit.

ARRANGEMENT OF FACILITIES IN THE WHOLESALE DISTRIBUTION CENTER

The facilities in the wholesale distribution center should be arranged so that handling operations, transportation, and distribution will be functionally coordinated. A master plan should be adopted in the beginning so the first buildings constructed will not interfere with the orderly development of the remaining areas. It should be planned to meet the needs of distributors and to attract buyers from a greater radius.

The arrangement of the buildings and other facilities in a distribution center will depend upon the physical features of the site selected. A layout of the proposed facilities on the Fort Fetter site, a site evaluated in this report (see section—"Sites Evaluated"), illustrates the principles of suitable arrangement (fig. 10). The use of the Fort Fetter site is not intended to influence the final selection of the distribution center site. A similar arrangement is possible on any of the sites considered.

The facilities shown in figure 10 are arranged on 62 acres; approximately 130 acres more are provided for construction of warehouse and for other food and associated firms that may locate on the site in the future. Although the actual site selected may differ in shape and topography from the one shown here, the principles illustrated in this layout should be adhered to as closely as circumstances permit.

Multiple-occupancy buildings are located adjacent to the main entrance to the site so that the heavy traffic of businesses in these buildings will not disrupt the rest of the center. Two wholesale grocery firms and three meat firms are located in the same multiple-occupancy building. It is more feasible to house these together in one large building than to build two small buildings for them.

The single-occupancy buildings are located so that they may be served by the central plant as economically as possible. The frozen food firms are near the central energy plant not only for this reason, but also so that they can serve the entire market needs for frozen food storage. Dairy firms are also located in individual buildings convenient to the plant.

The chain warehouse is located where it will have adequate space for expansion and flexibility in the arrangement of its facilities. It would be an integral part of the market, but located where normal market traffic will not interfere with its operation.

Rail tracks are arranged to use a minimum of switches and footage. Double tracks are behind those buildings using rail to allow unloading into facilities and facilitate switching. The allied industries and dairy firms are not provided with

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[5] A study of refrigeration systems for urban food distribution centers by the U.S. Department of Agriculture's Transportation and Facilities Research Division.

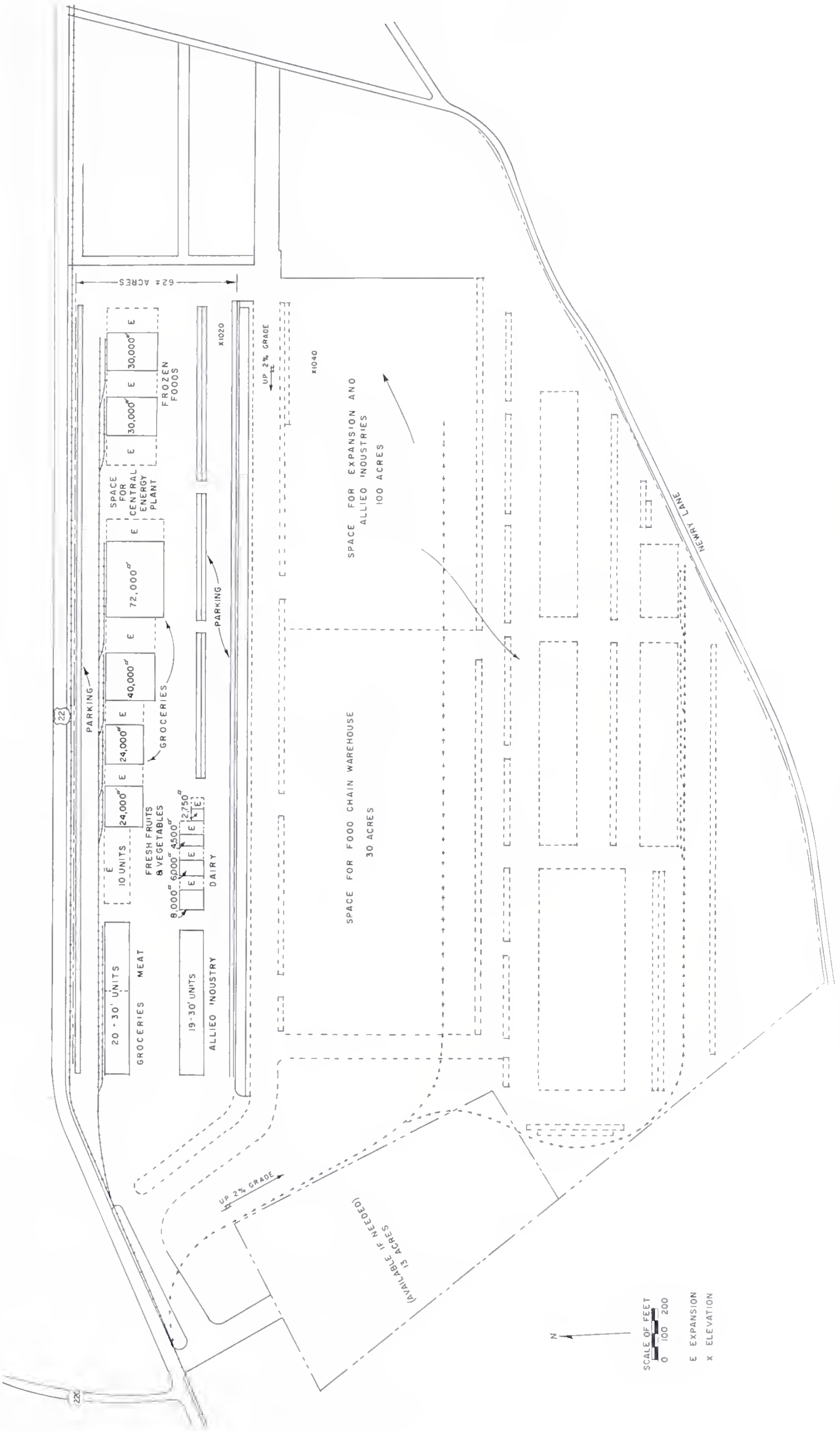

FIGURE 10.—Layout of a wholesale distribution center on the Fort Fetter site.

rail as they do not receive sufficient products by railroads to justify the expense of a rail siding. Should these firms need rail in the future, tracks can be easily installed.

Expansion areas for single-occupancy buildings are provided adjacent to the proposed structure. A single expansion area serves both multiple-occupancy buildings to provide for maximum flexibility in arranging future facilities.

All the proposed distribution facilities, with the exception of the chain warehouse, will be on one level. The chain warehouse and space for new firms will be on a second and higher level. All parts of the site have rail access and access to U.H. Highway 22 and 220 as well as the proposed new limited access highways.

SELECTING A SITE FOR THE WHOLESALE DISTRIBUTION CENTER

Many individuals and groups are extremely concerned in the location of the proposed wholesale food distribution center. Individual wholesale firms needing new facilities will be affected directly by land and distribution costs, which may vary from location to location. Market employees will be affected by changes in their working conditions and transportation. In addition, other groups directly concerned are: Consumers who will help defray the market costs for the center by their purchases; local producers whose delivery costs may vary depending on the location of the market; local governments whose urban and industrial renewal plans and police and fire protection might be affected by the relocation and consolidation; and public service firms, such as transportation agencies and utility companies, whose facilities and operations will have to be changed to accommodate the new market.

Factors To Be Considered

In selecting a site for a wholesale distribution center, the principal factors to be considered are (1) accessibility to truck and rail transportation; (2) availability of land; (3) cost of land; (4) availability of utilities; (5) convenience to customers; and (6) land use and zoning.

Accessibility to truck and rail transportation

The firms handling food included in this study received 29 percent of their direct receipts from railroads. Therefore, rail accessibility is essential for any site considered. Developers of the market should be assured that rail access will be adequate before final arrangements are made.

Since almost three-fourths (71 percent) of the direct receipts of firms studied arrived by truck and trucks delivered all the food that moved through the area, it is essential that the market be located with immediate access to existing as well as proposed highways.

Direct access to air and boat transportation to the site is not essential, since negligible receipts were reported by either air or boat.

Availability of land at reasonable cost

Availability of adequate land is a broad, general term when applied to a wholesale distribution center. Almost any site or area can be made available under certain conditions, but market sponsors should look for a site that is for sale at a reasonable price. If possible, they should choose a site that is owned by one person or by just a few people who are willing to sell at a reasonable price. Assembling parcels of land when dealing with many small owners may be complicated.

Although the selling price of the site is essential, it may not represent the major item of cost when land cost is distributed over the period of amortization. Further, in nearly all areas where markets have been constructed, the surrounding land's market value has increased. Thus, sufficient land should be purchased at the outset, as the total cost will be less than it is likely to be ever again. If possible, land should be available contiguous to, or at least in the vicinity of, the site selected for future expansion.

The physical features and shape of a site must be considered. A desirable site is reasonably level. The topography should be such that the costs of grading, filling, piling, and removing such obstructions as trees and buildings would not cost more than the land itself. A vital factor, therefore, is the cost of the land that is ready for use. Test borings should be made before the purchase of any site to determine subsoil conditions.

The shape of a site should permit the highest degree of utilization for the arrangement of facilities. Irregularly shaped ones do not lend themselves to this requirement as well as rectangular or square tracts. If the shape of the tract is such that proper arrangement of facilities would be difficult, costs of constructing the market would be uneconomical.

Land use and zoning

Current use of land must be considered in selecting a site. A vacant area with sufficient available acreage to develop a wholesale distribution center in the city of Altoona is nearly impossible to obtain. To acquire sufficient acreage within the city, existing buildings would have to be demolished on a selected site, probably through extensive use of eminent domain proceedings. Even then, no one would be able to guarantee that such a program would be successful or the final land utilization economical. As an alternative to costly urban areas where lengthy litigation proceedings could be involved, the planners could consider locating the center on the outskirts of the city where they would have fewer problems in acquiring land and preparing it for building.

Zoning of the site selected should be considered so that surrounding properties do not detract from the center and that the center does not detract from surrounding properties. Zoning regulations vary from area to area; however, a light industrial zoning classification is generally required for development of a wholesale distribution center, since such a center is primarily warehousing. Should certain types of food processing be contemplated in the center, such as livestock slaughtering, special zoning classifications may be necessary.

Availability of utilities

Accessibility of public utilities such as water, gas, electricity, and sewerage systems affects the suitability of a site. Where the urban area is expanding, some utilities may not be immediately available but may be planned. Utilities should be sufficient for commercial service and should be readily accessible. Under certain conditions the developer must pay for extending the utilities; under other situations, the city or county pays for the extension as a public improvement.

Convenience to customers

The firms in this study delivered over 90 percent of their tonnage directly to their customers. Many of their customers are retail stores, hotels, restaurants, and institutions. The rest of the food handled is picked up by the customers. For these reasons, a wholesale distribution center must be located in an area where a minimum of travel time is required by both buyers coming to the market and by wholesalers in distributing their products. The center of population is slightly north of the center of Altoona. Thus, the present and proposed highway system for Blair County could make nearly any site adjacent to the highway system and within a reasonable distance from Altoona, convenient for both buyers and distributors.

Other factors

A great deal of vehicular traffic is necessary for receiving and shipping products at wholesale facilities. Nonmarket traffic further complicates the traffic problem. Therefore, the site selected should be reasonably free of nonmarket traffic.

The possibility of air pollution should be considered in selecting a site. Noxious odors or air contaminants could permeate food. The possibility of flooding must also be carefully considered. It may be necessary to fill certain areas to prevent these areas from flooding as a result of heavy rains and melting snow.

Sites Evaluated

Potential sites were suggested by the wholesalers, real estate firms, railroads serving the area, and others interested in improving wholesale distribution efficiency in Blair County. Approximately 12 sites were evaluated by the Site Selection Committee of the Food Distribution Study Steering Committee of Altoona Enterprises. The three that were considered as having the best potentials are discussed here. They are the Watts farm site, the Fort Fetter site, and the Barnhart site.

The location of these three sites is shown in figure 11. Each site was considered in relation to the factors previously discussed. All are equally acceptable; the order in which they are discussed is not intended to indicate an order of preference.

Watts farm site

The Watts property (site 1, fig. 11) is located near Bellwood, about 7 miles north of the Altoona City Hall. It is bordered on the north by the Little Juniata River, on the east by Little Juniata River and U.S. Route 220, on the south by Bellwood, and on the west by the Penn Central Railroad. The site has two levels, a high-level area in the back near the railroad and a low level near Route 220 and along the river. A few farm buildings and houses are on the site. An access road to a proposed north-south expressway will pass adjacent to the site. Highway access is good. All utilities are available, and the property is zoned for general industrial use. One hundred and fifty-six acres are available from one owner at an estimated cost of $1.500 to $2,000 per acre.

Cost of land in condition to build cannot be determined until test borings have been made. Since flooding has occurred at the lower level along Route 220, land filling in this area will be necessary.

Fort Fetter site

The Fort Fetter property (site 2, fig. 11) is located about 6½ miles south of the Altoona City

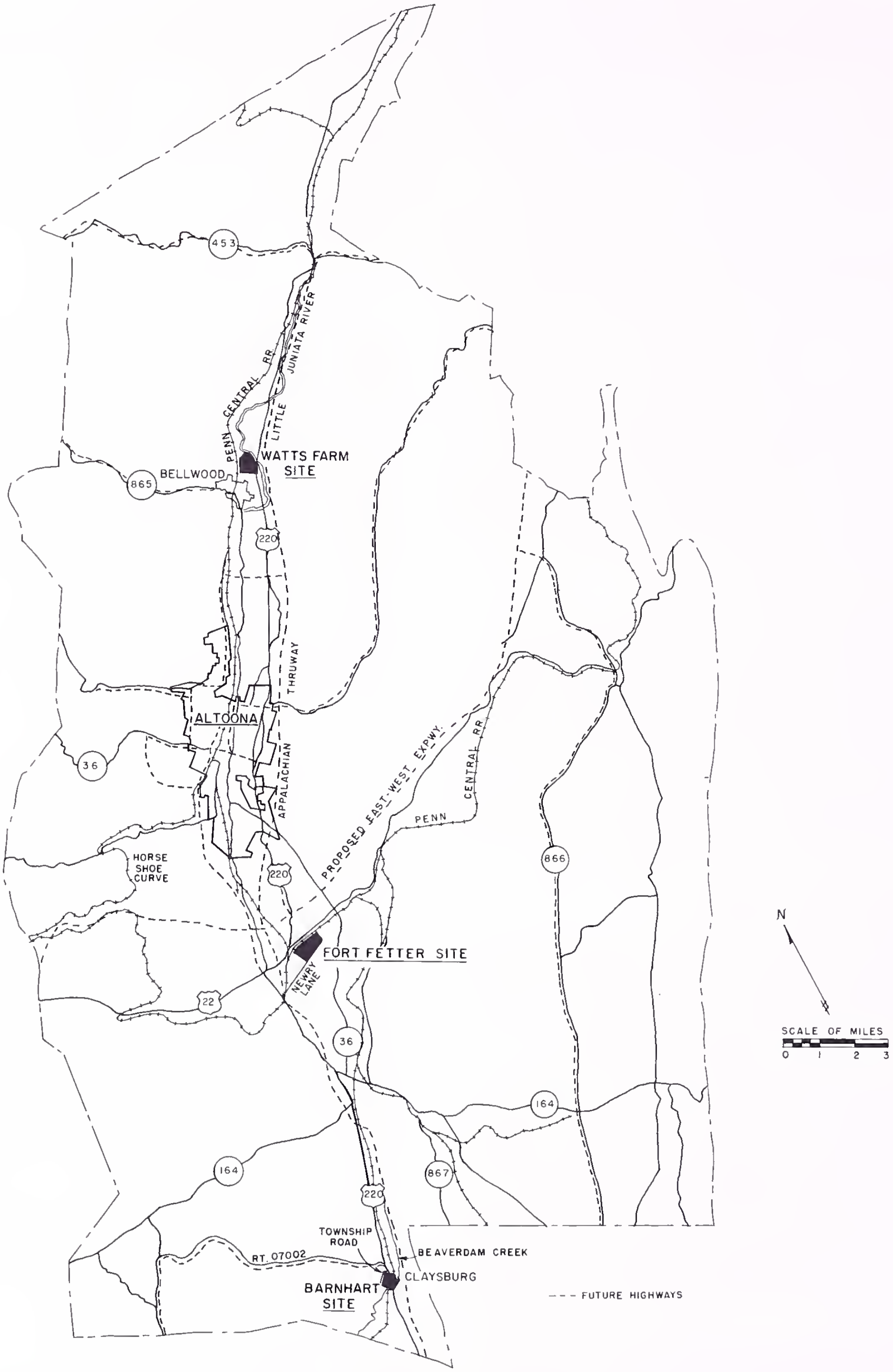

FIGURE 11.—Location of the three possible sites for a wholesale distribution center, rail lines, and traffic arteries, Blair County, Pa.

Hall. Its approximate boundaries are Penn Central Railroad on the north, Newry Lane, on the east and south, and an extension of U.S. Route 220 on the west and to the south. The area is hilly and contains some buildings. The proposed east-west expressway passes one-half mile north of the site and the Appalachian Thruway, one-half mile west of it. All utilities are available, and the property is zoned for general industrial use. Approximately 200 acres are available at a cost of approximately $2,000 an acre.

This land is owned by several individuals and organizations. Topography is slightly rougher than the Watts property, although the cost of grading and filling cannot be determined until test borings are made. The property on the north side, near the railroad, is low and will require some fill.

Barnhart site

The Barnhart site (site 3, fig. 11) is located approximately 16 miles south of Altoona City Hall on U.S. Route 220. Its approximate boundaries are Route 07002 on the north, Beaverdam Creek on the east, and Township Road on the west. The Penn Central Railroad crosses the property on the east side and U.S. Route 220 passes through the property. The site is west of the village of Claysburg.

This site contains approximately 180 acres, all under one ownership. Both gas and electricity are available. Adequate water can be supplied from wells, and sewerage lines are contemplated at the site by January 1970.

The estimated cost of this land is approximately $500 per acre, or $90,000. This cost does not include placing the land in condition to build. Considerable grading and filling will be needed.

FINANCING AND ORGANIZING A WHOLESALE DISTRIBUTION CENTER

The finest in overall market design and construction will not insure the success of a new wholesale distribution center unless it is properly promoted and soundly managed.

Producers, processors, transportation companies, wholesalers, retailers, and consumers are concerned with the operation of the market. Investors, whether private or public, have a right to expect a reasonable return on their investment and assurance that their interests will be protected. The center's governing body should be capable of looking after the interests of these groups.

Safeguards should be provided to prevent exploitation of the industry by the owners of the wholesale distribution center because the market should function as a public facility. As the center develops, the reason for precautions will become even more apparent.

No matter who may construct or finance the center, there should be definite assurances that—

1. It will be properly located, designed, and equipped.
2. Overbuilding will be prevented to assure maximum occupancy.
3. Funds will be invested wisely to provide for real needs, so that increased efficiency will not be offset by high rent or ownership costs.
4. Facilities will be used in the best interest of the industry and the public.
5. The center will be operated without discrimination against buyer, seller, mode of transportation, or origin of shipment.

Methods of Financing

Regardless of the organizational structure used, an entity should be formed to finance and develop a complete wholesale distribution center, with an area for future expansion. Wholesale distribution centers can be financed and operated in several ways, such as private corporations, public benefit corporations, direct public ownership, or various combinations of these methods.[6]

Private corporation

A private corporation usually is organized for profit, but it may also operate on a nonprofit basis. To form a private corporation, the incorporators usually obtain a charter from the State. This charter defines the power of the corporation and its officers and directors. It also specifies what the stockholders' rights shall be and how they shall exercise control.

When a private corporation is operated for profit, sales of stock are open to any individual wishing to buy. Sales are not restricted because of an individual's occupation or profession or a limit put on the number of shares of voting stock that may be held by any one individual. Stockholders normally have one vote in corporate affairs for each share of voting stock held.

A major advantage of a private corporation is the ability of the board of directors to make decisions quickly and without the delay found in other types of organizations. Quick decisions on major policy matters sometimes make the difference between success and failure of an organization. In addition, when the period of amortization expires, the entire investment belongs to the stockholders; tenancy changes have no effect upon stock ownership, and transfer of stock is unrestricted. The major problem of corporate ownership of a food distribution center is that a substantial financial equity is necessary.

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[6] For a more detailed discussion of these methods, see Clowes, Harry D., Elliott, W. H., and Crow, W. C. WHOLESALE FOOD MARKET FACILITIES—TYPES OF OWNERSHIP AND METHODS OF FINANCING. U.S. Dept. Agr. Market. Res. Rpt. No. 160, 96 pp., illus. 1957.

When a private corporation is operated on a nonprofit basis, on the other hand, the sale of shares of voting stock usually is restricted. A nonprofit market corporation probably would restrict the sale of stock to wholesalers and others directly concerned with the operation of the market, and would base the amount of stock sold to one individual or firm on the amount of facilities used. Some eligible purchasers of voting stock may also be required to purchase a specified number of shares of nonvoting stock. Through these restrictions on stock sales, the number of stockholders' votes and the voice in management exercised by any one shareholder are limited. Under the laws of some States, nonprofit corporations are referred to as cooperative corporations or societies.

Many wholesale food markets are owned and operated by private corporations. In some of these corporations, the principal stockholders are the tenants or wholesalers. In others, the corporation may be a railroad company or some other company organized primarily for another type of business.

Public benefit corporation

A public benefit corporation is a nonprofit agency that is controlled by the State or local government for the benefit of the local citizens. As such, rentals and other charges do not exceed the amount needed to pay the costs of operation, amortize the original investment, and maintain a limited reserve for contingencies. Since, under public ownership, the revenues would be considered public funds, the reserve fund could not be paid to lessees as dividends. There is the possibility, however, that reserve funds might be appropriated for other public uses while bonds remained outstanding, unless reserves are specifically committed to redemption of bonds.

Public benefit corporations are frequently formed as market authorities. They have many useful features not found in other types of ownership. They usually have the power of eminent domain, which can be useful in the acquisition of a site. Market authorities can usually finance market improvements through the sale of revenue bonds. This type of financing, normally, is not a full obligation of a State or political subdivision. Since these bonds are often tax exempt, the interest cost is lower. A public agency, such as a market authority, is more likely than a private corporation to provide for future expansion and to work toward a complete wholesale distribution center. It may not be required to pay taxes to the community in which it is located.

Market authorities also have certain limitations, especially in the financing and managing of the facilities. They may find it difficult to raise funds through revenue bonds unless considerable equity funds are provided in some way or the bonds are guaranteed by the city, county, or State. Some State or city governments have appropriated part of the funds needed for land acquisition and original construction. The continuity of management may depend on the continuance of a State or municipal government administration in office. As a whole, market authorities do not have as complete freedom of operation as is possible under private ownership.

Direct public ownership

Some wholesale food market facilities have been financed, constructed, and operated by States, counties, and municipalities. Several States and municipalities have enabling legislation covering the improvement or establishment of markets.

Direct State ownership and operation usually can be differentiated from ownership and operation by a State market authority by the methods of financing used and the delegation of authority made by the State legislature. Although a number of States have appropriated funds and otherwise assisted market authorities with financial problems, they do not usually underwrite the total cost of a market constructed by an authority, nor have the States always assumed responsibility for the operation of these markets. Direct State ownership depends on the market facility's being financed in whole or in part by an appropriation of State funds. If the financing is not entirely by this method, the State usually is obligated for the remainder unless this balance is obtained through grants or donations. Also, the State is responsible for maintenance and other expenses involved in the operation of a State-owned market.

Municipal ownership of a wholesale food market is comparable in many of its basic aspects to direct State ownership. Some municipalities are authorized in their charters to construct and operate food markets. Some city councils or commissions are not authorized to appropriate from general funds in the city treasury for the construction of market facilities on a basis comparable to that of a State legislature. Three methods are usually open to municipalities for financing a market program: (1) Issuing municipal bonds, (2) issuing revenue warrants, and (3) obtaining loans from public corporations. In most cities, issuing bonds for such purposes must be approved in a referendum by a majority of the qualified voters. States may finance, construct, and operate wholesale food market facilities because the State legislatures feel that improved facilities, in themselves, will serve the public interest. Facilities constructed with municipal or county funds would necessarily be owned by the county or municipality, and rent would have to be paid by the tenants indefinitely.

Combinations

Wholesale distribution centers have been established by combining two or more of the types of ownership and operations. For example, a food distribution center in Philadelphia has been developed by a nonprofit corporation on land owned and put in condition for building by the city.

Sources of Capital

Two or more sources of capital could be used to finance the new wholesale distribution center in Blair County. The entire project could be constructed and operated by a single group or agency, or various parts could be constructed and operated by different groups or agencies.

State or local government

The State is one possibility as a source of capital for the center. Pennsylvania is actively encouraging industrial and commercial development.

In 1967 the State Legislature enacted the Industrial Development Authorities Act for this purpose. This act empowers any county, city, town, borough, or township to create an industrial development authority. Such an authority can issue nondebt revenue bonds to finance the acquisition or construction of industrial development projects. This act permits the financing of both plant and equipment. As long as the property is held by the authority, no real estate taxes are paid, but a payment in lieu of taxes is required. Bonds may be issued with maturity periods up to 50 years from the date of issue.

The food distribution center falls within the meaning of the act. An "Industrial Development Project" includes plants and equipment: the term "industrial" includes warehouses and terminals. The interest rate of the bonds is assumed at 5 percent with the debt amortized over 25 years. Any income exceeding current expenses would be held as a reserve.

Private financing

The three major sources of private capital are first mortgage bonds, second mortgage bonds or preferred stock, and equity capital.

Generally, 65 percent of the required capital is obtained on a first mortgage and 20 to 25 percent on a second mortgage, or by issuance of preferred stock. The remaining 10 to 15 percent could be equity capital.

A rate of 7 percent on an amortization period is assumed. This rate would be a composite of the various rates charged for capital from each of these sources.

If bonds are issued, the investors might demand that current income exceed expenses by some stipulated amount for a reserve fund. Amounts required would vary according to the tightness of the money market, the financial rating of the bond issues, and the value of collateral.

Estimated Investment in Land and Facilities

The initial investment in a Blair County wholesale distribution center involves two major components: land and facilities. These costs can vary considerably depending on the price of the site selected and the time of construction.

Acquisition of a site is subject to negotiation, regardless of the assessed value or appraisal of actual valuation. Parcels of land belonging to different owners may have to be assembled. Usually, civic-minded citizens can obtain the necessary acreage at a reasonable cost, since such an industry is essential to the economy of the community. The estimates given in this report are only those involved in buying the land and constructing the facilities needed. They do not include costs for additional facilities that may be built later in the expansion areas or the costs of access streets, water mains, and sewers, which are usually supplied by the city.

Land

In Blair County a representative price for industrial land is $2,000 per acre. Costs of land, however, will depend on the site selected and conditions of sale. At the time of this report, information was not available to allow an accurate estimate of the cost of putting the land in condition to build. This preparation cost will increase the total land cost above $2,000 an acre.

Facilities

The costs of facilities are estimated from late 1968 construction indexes for Harrisburg, Pa.

Detailed estimates of building costs are for the basic structure, assuming a "light mill" brick and steel construction. Individual firms will finish offices, install portable equipment, and satisfy any other individual requirement.

Estimated cost of paved surfaces for each commodity group includes the group's allocated share of market streets. Sewers, lead-in railroad tracks, and public parking are allocated on a similar basis. House tracks are charged to the user.

The following estimates should be used only as a guide in arriving at a total estimated cost for the project; these costs are NOT intended to replace firm estimates made by local architects and contractors at the time construction starts. These costs are calculated for the Fort Fetter site. Construction costs on the other two sites would be similar.

Investment cost for all the proposed facilities excluding the central energy plant and food chain warehouse would amount to about $5.8 million. This figure does not include the cost of land in the expansion area. A summary of the estimated costs for land and facilities for various commodity groups is shown in table 7.

Detailed cost estimates for construction and land for the wholesale distribution center on the Fort Fetter site, Blair County, Pa.

Grocery Section

Multiple-occupancy facilities:	
Building: [1]	
1 building with 11 units—3,000 sq. ft. of 1st floor space per unit @ $9.75 per square foot or $29,250 per unit [2]	$321, 750
Other facilities:	
Trackage: [3]	
House and lead-in tracks—897 ft. @ $14 per linear foot	12, 558
Railroad switches—1 @ $4,000	4, 000
Paving (bituminous concrete)—18,047 sq. yds. @ $3.50 per sq. yd.[4]	63, 165
Sewers:	
15-inch storm—900 ft. @ $6.35 per foot	5, 715
12-inch sanitary—450 ft. @ $6.75 per foot	3, 038
Floodlights—4 @ $300 each	1, 200
Total construction cost of building and other facilities	411, 426
Associated construction costs: [5]	
Architect's fee	24, 686
Construction loan	28, 347
Contingency allowance	46, 446
Total cost of building, other facilities, and associated costs	510, 905
Land, 5.25 acres @ $2,000 per acre	10, 500
Total investment for multiple-occupancy facilities	521, 405
Single-occupancy facilities:	
Building: [1]	
3 buildings, totaling 136,000 sq. ft. of 1st floor space @ $9.75 per sq. ft.	1, 326, 000
Other facilities:	
Trackage: [3]	
House and lead-in tracks—1,793 ft. @ $14 per linear foot	25, 102
Railroad switches, 1 for each building, total 3 @ $4,000 each	12, 000
Paving (bituminous concrete)—69,107 sq. yd. @ $3.50 per sq. yd.[4]	241, 875
Sewers:	
15-inch storm—1,400 ft. @ $ 6.35 per foot	8, 890
12-inch sanitary—700 ft. @ $6.75 per foot	4, 725
Floodlights—14 total, 4 each for two buildings, 6 each for 1 building @ $300 each	4, 200
Total cost for buildings and other facilities	1, 622, 792
Associated construction costs: [5]	
Architect's fee	97, 367
Construction loan	111, 811
Contingency allowance	183, 197
Total cost of buildings, other facilities, and associated costs	2, 015, 167
Land, 20.50 acres @ $2,000 per acre	41, 000
Total investment for single-occupancy facilities	2, 056, 167
Total investment for grocery section	2, 577, 572

See footnotes at end of tabulation.

Detailed cost estimates for construction and land for the wholesale distribution center on the Fort Fetter site, Blair County, Pa.—Continued

Fruit and Vegetable Section

Single-occupancy facilities:	
Building:[1]	
1 building—24,000 sq. ft. of 1st floor space @ $9.75 per square foot	$234,000
Other facilities:	
Trackage:[3]	
House and lead-in tracks—435 ft. @ $14 per linear ft	6,090
Railroad switches—1 @ $4,000 each	4,000
Paving (bituminous concrete)—12,574 sq. yds. @ $3.50 per sq. yd.[4]	44,009
Sewers:	
15-inch storm—300 ft. @ $6.35 per foot	1,905
12-inch sanitary—150 ft. @ $6.75 per foot	1,012
Floodlights—4 @ $300 each	1,200
Total construction cost of building and other facilities	292,216
Associated construction costs:[5]	
Architect's fee	17,533
Construction loan	20,134
Contingency allowance	32,988
Total cost of building, other facilities, and associated costs	362,871
Land, 3.75 acres @ $2,000 per acre	7,500
Total investment for fruit and vegetable section	370,371

Dairy Section

Single-occupancy facilities:	
Building:[1]	
4 buildings totaling 21,250 sq. ft. of 1st floor space @ $9.75 per square foot	207,187
Other facilities:	
Paving (bituminous concrete)—11,396 sq. yds. @ $3.50 per square yard[4]	39,887
Sewers:	
15-inch storm—1,000 ft. @ $6.35 per foot	6,350
12-inch sanitary—500 ft. @ $6.75 per foot	3,374
Floodlights—16 @ $300 each	4,800
Total construction cost of building and other facilities	261,598
Associated construction costs:[5]	
Architect's fee	15,696
Construction loan	18,024
Contingency allowance	29,532
Total cost of buildings, other facilities, and associated costs	324,850
Land, 3.50 acres @ $2,000 per acre	7,000
Total investment for dairy section	331,850

Frozen Foods Section

Single-occupancy facilities:	
Buildings:[1]	
2 buildings, totaling 60,000 sq. ft. of 1st floor space @ $9.75 per square foot	585,000
Insulation	160,000
Total construction cost of building	745,000
Other facilities:	
Trackage:[3]	
House and lead-in tracks—816 ft. @ $14 per linear ft	11,424
Railroad switches—2 @ $4,000 each	8,000
Paving (bituminous concrete)—31,334 sq. yd. @ $3.50 per square yard[4]	109,670
Sewers:	
15-inch storm—1,200 ft. @ $6.35 per foot	7,620
12-inch sanitary—600 ft. @ $6.75 per foot	4,050
Floodlights—8 @ $300 each	2,400
Total construction cost of building and other facilities	888,164

See footnotes at end of tabulation.

Detailed cost estimates for construction and land for the wholesale distribution center on the Fort Fetter site, Blair County, Pa.—Continued

Frozen Foods Section—Continued

Single-occupancy facilities:—Continued	
Associated construction costs: [5]	
Architect's fee	$53, 290
Construction loan	61, 194
Contingency allowance	100, 264
Total cost of buildings, other facilities, and associated costs	1, 102, 912
Land, 9.50 acres @ $2,000 per acre	19, 000
Total investment for frozen food section	1, 121, 912

Meat Section

Multiple-occupancy facilities:	
Building: [1]	
1 building with 9 units—3,000 sq. ft. of 1st floor space per unit @ $9.75 per square foot, or $29,250 per unit	263, 250
Grease traps—9 @ $300 each	2, 700
Meat rails—9 @ $7,500 per unit	67, 500
Insulation	21, 750
Total construction cost of building	355, 200
Other facilities:	
Trackage: [3]	
House and lead-in tracks—733 ft. @ $14 per linear foot	10, 262
Railroad switches—1 @ $4,000 each	4, 000
Paving (bituminous concrete)—14,303 sq. yd. @ $3.50 per sq. yard [4]	50, 061
Sewers:	
15-inch storm—540 ft. @ $6.35 per foot	3, 429
12-inch sanitary—270 ft. @ $6.75 per foot	1, 822
Floodlights—4 @ $300 each	1, 200
Total construction costs of building and other facilities	425, 974
Associated costs: [5]	
Architect's fee	25, 558
Construction loan	29, 350
Contingency allowance	48, 088
Total cost of building, other facilities, and associated costs	528, 970
Land, 4.25 acres @ $2,000 per acre	8, 500
Total investment for meat section	537, 470

Allied Industries Section

Multiple-occupancy facilities:	
Building: [1]	
1 building with 19 units—3,000 sq. ft. of 1st floor space per unit, @ $9.75 per square foot, or $29,250 per unit [2]	555, 750
Other facilities:	
Paving (bituminous concrete)—32,389 sq. yd. @ $3.50 per sq. yd [4]	113, 362
Sewers:	
15-inch storm—1,150 ft. @ $6.35 per foot	7, 302
12-inch sanitary—575 ft. @ $6.75 per foot	3, 881
Floodlights—6 @ $300 each	1, 800
Total construction cost of building and other facilities	682, 095

See footnotes at end of tabulation.

Detailed cost estimates for construction and land for the wholesale distribution center on the Fort Fetter site, Blair County, Pa.—Continued

Allied Industries Section—Continued

Multiple-occupancy facilities—Continued	
Associated costs:[5]	
Architect's fee	$40, 926
Construction loan	46, 996
Contingency allowance	77, 002
Total cost of building, other facilities, and associated costs	847, 019
Land, 8.75 acres @ $2,000 per acre	17, 500
Total investment for allied industries section	864, 519
TOTAL INVESTMENT FOR WHOLESALE FACILITIES	5, 803, 694

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[1] Costs are based on Harrisburg, Pa., building index, October 1968, brick and steel construction.

[2] Includes cost for 510 sq. ft. of mezzanine space.

[3] Linear feet of trackage includes prorata share of lead-in tracks. The cost of tracks and switches are based on 1968 information supplied by railroads in Altoona.

[4] Includes allocated share of streets and parking area. Paving specifications should conform to those established by the Asphalt Institute.

[5] Associated construction costs are estimated as follows: Architect's fee = 6 percent of building and facilities cost; construction loan = 6½ percent of building and other facilities and architect's fee; Contingency = 10 percent of building and other facility costs, architect's fee, and construction loan. However, this allowance may be discontinued when a sufficient reserve has been acquired.

TABLE 7.—*Summary of estimated investment costs of land and facilities by commodity group and type of facility for the proposed distribution center on the Fort Fetter site*

Commodity group or type of facility	Acreage needed	Estimated costs		
		Land	Facilities	Total
Multiple-occupancy building:	*Acres*	*Dollars*	*Dollars*	*Dollars*
Groceries	5. 25	10, 500	510, 905	521, 405
Meat and related products	4. 25	8, 500	528, 970	537, 470
Allied industries	8. 75	17, 500	847, 019	864, 519
Single-occupancy building:				
Groceries	20. 40	41, 000	2, 015, 167	2, 056, 167
Fruits and vegetables	3. 75	7, 500	362, 871	370, 371
Dairy products	3. 50	7, 000	324, 850	331, 850
Frozen foods	9. 50	19, 000	1, 102, 911	1, 121, 912
Central energy plant	6. 50	(1)	(1)	(1)
Total	62. 00	111, 000	5, 692, 694	5, 803, 694

(1) Financed by the operating utility company.

ESTIMATED ANNUAL COSTS AND REVENUE REQUIREMENTS

The revenue required to operate the proposed facilities could vary according to the methods that are chosen to finance the center. Should the sponsors of the center use the Industrial Development Act, not only would the interest costs be reduced but also the amortization period. In this report, comparisons will be shown between financing the wholesale distribution center under the terms of the Industrial Development Act and private financing.

It is assumed that the market would be constructed as a single project with the exception of chain warehouses and the central energy plant. These assumptions are not intended to suggest that these are the most desirable arrangements, nor are they intended to exclude other arrangements; they are presented only so that some estimates of probable operating expenses may be included in this report.

The annual costs of operating the wholesale distribution center include (1) management costs; (2) insurance; (3) maintenance and repairs; (4) real estate taxes; and (5) debt service. Total annual revenue required is then determined by these five items.

Management Costs

The management costs are based on annual reports of other wholesale distribution centers and estimates of such costs in Blair County. These costs are prorated among the wholesalers on the basis of the square footage of facilities occupied.

Certain annual administrative costs inherent in successful operations of a wholesale distribution center are estimated as follows:

Secretary-clerk (part time)	$3,000
Auditing and legal service	1,500
Office rental	300
Advertising and promotion	1,500
Office supplies and equipment	600
Telephone and other communications	100
Contingency	700
Total	7,700

To conserve funds, the manager was given an honorary position at no salary. Management costs, however, are flexible and depend on the needs and wishes of the tenants in the center and the center itself. Sanitation expenses and police protection have been omitted as these services are usually provided by the local government.

Insurance Costs

Insurance underwriters in the county and elsewhere provided the basis for the estimates of fire, extended coverage, and liability insurance (table 8).

Maintenance and Repairs

Maintenance and repairs were assumed to be one-half of one percent of the total cost of construction of buildings and other facilities. The rate was applied to all buildings and facilities. A 10-percent contingency is included to cover increases in this cost item (table 8).

Real Estate Taxes

The distribution center is assumed to make a payment in lieu of taxes equal to the actual real estate taxes. In Blair County in 1968, taxes were based on 50 percent of the estimated investment in land and facilities to obtain the assessed valuation. Taxes were computed at a rate of $39.50 per $1,000 of assessed value. In addition, a 10-percent contingency fund is included to provide for possible increases in the current tax rate or reassessments. When a full year's tax payment has been accrued, this contingency fund could be discontinued. The total annual tax payment of the center is estimated at $126,085 (table 9).

Debt Service

In this report, the costs of financing the distribution center have been estimated under the terms of the Pennsylvania Industrial Development Act. Interest rates are projected at 5 per-

TABLE 8.—*Estimated annual income required by commodity group for management, insurance, maintenance, and reserve for the proposed wholesale distribution center on the Fort Fetter site*

Commodity group or type of facility	Management [1]	Insurance [2]	Maintenance and repairs [3]	Reserve [4]	Total
	Dollars	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Multiple-occupancy facilities:					
Groceries	709	1,507	2,555	477	5,248
Meat and related products	578	1,601	2,632	481	5,292
Allied industries	1,224	2,601	4,238	806	8,869
Single-occupancy facilities:					
Groceries	2,925	6,206	10,077	1,921	21,129
Fruits and vegetables	516	1,097	1,814	343	3,770
Dairy products	454	986	1,624	306	3,370
Frozen foods	1,294	3,380	5,515	1,019	11,208
Total	7,700	17,378	28,455	5,353	58,886

[1] Prorated on the basis of the value of the facilities.
[2] Fire and liability. Based on estimates of local and national insurance associations.
[3] ½ percent of the construction and associated costs.
[4] 10 percent of the preceding items.

TABLE 9.—*Estimated annual revenue required for payment in lieu of real estate taxes for the proposed distribution center on the Fort Fetter site* [1]

Commodity group or type of facility	Assessed value [2]	Income required for taxes		
		Tax [3]	Reserve [4]	Total
Multiple-occupancy facilities:	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Groceries	260, 703	10, 298	1, 030	11, 328
Meat and related products	268, 735	10, 615	1, 062	11, 677
Allied industries	432, 260	17, 074	1, 707	18, 781
Single-occupancy facilities:				
Groceries	1, 028, 084	40, 609	4, 061	44, 670
Fruits and vegetables	185, 186	7, 315	731	8, 046
Dairy products	165, 925	6, 554	655	7, 209
Frozen foods	560, 956	22, 158	2, 216	24, 374
Total	2, 901, 847	114, 623	11, 462	126, 085

[1] Real estate taxes and payment in lieu of taxes are assumed to be equal.

[2] 50 percent of total investment in land and buildings.

[3] $39.50 for $1,000 of assessed value.

[4] 10 percent of the taxes until the equivalent of 1 year's total payment is accumulated.

cent with an amortization period of 25 years with Industrial Development Act financing. Annual amortization charges at an annual interest rate of 5 percent for 25 years would amount to $70.95 per $1,000 of investment. Since the design of the facilities recommended is by intent multipurpose, the facilities can easily be converted to meet the needs of many industries. Facilities of this type should not become obsolete in less than 25 years and should have a useful life for a much longer period.

A debt-service reserve or contingency fund is usually required by creditors. This reserve might be 10 percent of the annual amortization charge and might be discontinued when a full year's amortization charge is accumulated. Such a contingency fund has been included in the debt service costs.

In table 10 the estimated annual income required for debt service to amortize the cost of the center with financing under terms of the Pennsylvania Industrial Development Act at 5 percent annual interest is compared with private financing at 7 percent annual interest.

TABLE 10.—*Comparison of estimated annual revenue required for payment of debt service for State and private financing in the proposed distribution facilities on the Fort Fetter site* [1]

Commodity group or type of facility	Investment in land and facilities	Amortization charges		Reserve		Total revenue	
		Authority financing	Private financing	Authority financing	Private financing	Authority financing	Private financing
Multiple-occupancy facilities:	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Groceries	521, 405	36, 994	44, 742	3, 699	4, 474	40, 693	49, 216
Meat and related products	537, 470	38, 133	46, 120	3, 813	4, 612	41, 946	50, 732
Allied industries	864, 519	61, 337	74, 184	6, 134	7, 418	67, 471	81, 602
Single-occupancy facilities:							
Groceries	2, 056, 467	145, 885	176, 440	14, 589	17, 644	160, 474	194, 084
Fruits and vegetables	370, 371	26, 278	31, 782	2, 628	3, 178	28, 906	34, 960
Dairy products	331, 850	23, 545	28, 476	2, 354	2, 848	25, 899	31, 324
Frozen foods	1, 121, 912	79, 600	96, 271	7, 960	9, 627	87, 560	105, 898
Total	5, 803, 694	411, 772	498, 015	41, 177	49, 801	452, 949	547, 816

[1] 25-year amortization period: 5 percent annual interest, Pa. Industrial Development Authorities Act of 1967; 7 percent interest, commercial lending agencies.

ESTIMATED ANNUAL REVENUE REQUIRED

Table 11 shows the estimated annual revenue required to operate and finance the proposed wholesale distribution center using State and private financing. Included in the estimate are costs for management, maintenance, insurance, real estate taxes, and debt service.

TABLE 11.—*Estimated total annual revenue required to operate and finance a proposed wholesale distribution center on the Fort Fetter site, with two methods of financing*

Commodity group or type of facility	Annual revenue required [1]	
	Authority financing	Private financing
Multiple-occupancy facilities:	*Dollars*	*Dollars*
Groceries	57, 269	65, 792
Meat and related products	58, 915	67, 701
Allied industries	95, 121	109, 252
Single-occupancy facilities:		
Groceries	226, 273	259, 883
Fruits and vegetables	40, 722	46, 776
Dairy products	36, 478	41, 903
Frozen foods	123, 142	141, 480
Total	637, 920	732, 787

[1] Includes management, insurance, real estate taxes, and debt service.

Should additional firms other than those planned for locate in the distribution center, costs to individual firms might be reduced through lower prorated costs for street paving, utility lines, rail spurs, and storm sewers. Special tax concessions or the use of municipal services would also reduce total income required to operate the distribution center.

Source of Revenue

The revenue required to support any wholesale market must be obtained from rents and charges for use of facilities. Rental charges are based on the total computed cost. An annual rent of $637,920 would be required with authority financing and $732,787 with private financing. The cost of streets in the center, paved parking, and other items have been prorated among the wholesalers. The rentals shown in table 12 will adequately cover costs and reserves.

In some markets, certain operating costs have been reduced when some of the required revenue was derived from other sources, such as utility companies installing services to individual warehouses or the railroads providing the lead-in trackage. Should similar agencies in Blair County supply these services, costs would be reduced.

TABLE 12.—*Estimated rentals required to produce the total revenue needed with 2 methods of financing, by type of wholesaler or facility, for the proposed wholesale distribution center on the Fort Fetter site*

Commodity group or type of facility	Floor space	Rent per square foot with—	
		Authority financing	Private financing
Multiple-occupancy facilities: [1]	*Square feet*	*Dollars*	*Dollars*
Groceries	38, 610	1. 48	1. 70
Meat [2]	31, 590	1. 86	2. 13
Allied industries	66, 690	1. 43	1. 64
Single-occupancy facilities:			
Groceries	136, 000	1. 66	1. 91
Fruits and vegetables	24, 000	1. 70	1. 95
Dairy products	21, 250	1. 72	1. 97
Frozen foods [3]	60, 000	2. 05	2. 36
Total or average	378, 140	1. 69	1. 94

[1] Includes mezzanine.
[2] Includes insulation, meat rails, and grease traps.
[3] Includes insulation.

ESTIMATED BENEFITS AND COST REDUCTIONS

Measurable Benefits

Costs and savings for the 21 firms included in this study were combined to avoid revealing confidential data. Costs that would be most affected by new facilities for the 14 independent food firms are (1) handling costs, (2) spoilage, deterioration, breakage, and shrinkage, and (3) rentals. These costs are not the only ones that would change the new facilities, but they reflect the greatest cost change and savings.

The cost estimates given here were based on operating costs for new facilities built in other areas where conditions were comparable to those of Blair County. Costs were not estimated for the allied industries because of their diverse operations, or for the food chain warehouse or the wholesale grocery firm that is establishing a new business.

Savings in handing would result from decreasing the cost of moving the product from the first point of arrival in the area into the facility, within the facility, and loading it onto outgoing trucks.

Cartage, for example, would be eliminated. In the proposed distribution center, railroads will make deliveries directly to the warehouse, thus the costs of moving products from the team tracks to the warehouse will be eliminated.

The greatest savings would be achieved by increased efficiency in the improved facilities. The one-story buildings with docks at railroad and truck-bed levels will permit unloading, loading, and movement of supplies into the building with mechanical handling equipment to the cooling or storage area, or permit supplies to be loaded immediately on trucks for delivery out of the facility. Even firms handling small volumes could operate more efficiently by using pallets and pallet jacks.

The reduction in handling cost is estimated to total more than $347,000 annually (table 13).

Spoilage losses should be reduced with the improved refrigeration in the new center. The refrigeration equipment would be included in the central energy plant and insulation costs are included in construction costs. Costs for refrigerant should be the same or less than such costs in present facilities. Pilferage would be reduced, and with less handling required, breakage, bruising, and subsequent spoilage should be reduced considerably. Cost reduction estimates, based upon the experience of wholesalers operating in modern facilities, would be nearly $152,000 (table 13).

Although rents will be higher in the proposed facilities than they are now, the improvements and services that will be available to the wholesalers will more than offset the higher rents. The comparison of rentals between the old and the new facilities for the 14 firms indicates an increase of more than $418,000 annually with authority financing (table 13).

Total measurable costs for the 14 food wholesalers would be reduced an estimated $81,000 annually. Fruits and vegetables and frozen food wholesalers would save more than $161,000, and meat wholesalers about $17,000 annually. Costs of grocery and dairy wholesalers, on the other hand, would increase $96,000 and $1,625 respectively.

While these costs and estimated savings apply to only 14 wholesale food firms, it is reasonable to assume that other wholesalers who relocate in the center would have comparable savings.

Nonmeasurable Benefits

In addition to the measurable benefits of modern food facilities, there are benefits that cannot be easily measured in dollars. These benefits are both economic and social. They would be shared by the wholesalers, wholesale buyers, consumers, market employees, truckers, and railroads, and others interested in the food center.

The total operating cost of wholesalers could be reduced by the more efficient operating methods possible in a new market. With the improved location of the Blair County wholesalers, sales from outside the normal distribution area might be forthcoming.

The central location of wholesale firms would permit buyers to make purchases in less time. With improved handling methods and better refrigeration, the quality of perishable foods could be maintained at a higher level.

Working conditions for the warehouse employees would be expected to improve in modern facilities. Since the buildings are designed for the mechanized handling of products, less physical effort will be required to handle a larger volume of food.

Both the trucking firms and the railroad should benefit from the proposed facilities. With wider streets and docks at the warehouses, unnecessary handling will be eliminated. Truckers and others can load and unload directly without having to wait for dock space, a saving in time and convenience.

The railroad serving the proposed distribution center would benefit in two important ways. (1) It would be able to place cars adjacent to wholesale facilities for unloading. (2) With consolidation of wholesale firms in one location, the railroad would be able to use its tracks and equipment more efficiently.

The construction of new facilities would benefit the local governments as follows: (1) The reloca-

TABLE 13.—*Estimated annual costs in the present and proposed facilities for 14 food wholesalers*

Type of wholesaler	Firms	Annual volume incurring costs	Handling cost			Spoilage, deterioration, and shrinkage			Rent [1]			Summary		Savings
			Present	Proposed		Present	Proposed		Present	Proposed		Total present	Total proposed	
				Per ton	Total		Per ton	Total		Per ton	Total			
	Number	*Tons*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*	*Dollars*
Groceries	[2] 4	16,670	158,032	3.01	50,100	59,200	1.78	29,600	50,200	17.01	283,542	267,432	363,242	[3] −95,810
Fruits and vegetables and frozen foods [4]	3	23,835	248,344	3.90	93,000	172,020	2.15	51,250	49,100	6.88	163,864	469,464	308,114	161,350
Dairy products	4	3,794	33,653	3.56	13,500	--	--	--	14,700	9.61	36,478	48,353	49,978	[3] −1,625
Meat [5]	3	1,648	168,475	63.41	104,500	3,000	.91	1,500	10,600	35.25	58,915	182,075	164,915	17,160
Total or average	14	45,947	608,504	5.68	261,100	234,220	1.79	82,350	124,600	11.81	542,799	967,324	886,249	81,075

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[1] Rental value when facilities are owned. Proposed rental based on authority financing.

[2] Excludes data for 1 firm establishing a new business.

[3] An increase in cost.

[4] Fruits and vegetables and frozen foods combined to avoid revealing confidential data.

[5] Includes cost of processing.

tion of the food wholesaling firms would allow land in urban renewal areas to be put to uses that would increase tax revenues; (2) the location of food firms in new facilities would make it easier to enforce sanitation and fire regulations; (3) the proposed facilities could produce tax revenue in excess of $114,000 annually; and (4) indirect increases in tax returns should be possible from the increased volumes expected to move through the proposed facilities.

CONCLUSIONS

Constructing a modern wholesale distribution center in Blair County, Pa., is economically feasible. As a distribution center for the city of Altoona and the central Pennsylvania Appalachian Region, the center would replace present inefficient and outmoded facilities, benefiting not only the trade groups and individuals directly involved, but also the community at large.

Such a regional market would be feasible if—

1. It is built at a convenient location with unrestricted receiving and distribution.
2. A master plan is prepared and adopted at the outset so that the first buildings constructed will not interfere with later full development of the center.
3. The facilities to be included, the amount of land needed, and the requisites for the site are in accordance with the findings of this study, and caution is exercised in scheduling construction of buildings and the occupancy of proprietors who would move in now or later.
4. Plans are coordinated with the planning of the Blair County Planning Commission and the Altoona Planning Board, including those for redevelopment of blighted areas, future location of major expressways and other transportation arteries, and with facilities now planned or under construction.
5. An effective sponsoring group is established to develop and implement a sound organizational and construction program.

APPENDIX

Guides to Planning Interior Operational Layouts

A number of general principles should be considered when planning interior layouts. Plans for an efficient interior operational layout are essential before construction to determine the locations of (1) insulation for refrigerated areas, (2) electrical outlets and utilities control panels, (3) lighting fixtures (over aisles for more accurate selection), (4) equipment servicing areas, (5) pallet racks, (6) drains, (7) thermostats, (8) columns, and (9) removable walls or partitions for future expansion.

These plans should be based on the following principles:

- *Maximum space use.*—Making full use of the storage cube by using pallet racks to hold the pallets of merchandise in tiers.
- *Rapid flow of products.*—Storage areas, platforms, doors, and aisles should be planned to provide both access to the storage areas in the least amount of time and for maximum use of space. Items with the most rapid turnover should travel the shortest distance.
- *Flexibility of space use.*—In an industry of rapid technological advancements such as the food industry, flexibility is highly desirable. Large open areas with a minimum of obstructions will help provide this flexibility. In the storage areas, four-way entry pallets and adjustable pallet racks offer further flexibility.
- *Protection of product quality.*—Maintaining the quality of food is essential. Handling systems that minimize the number of times products are handled and the distance they are transported reduce the possibility of physical damage during handling. Refrigeration facilities that maintain the proper temperature and humidity for specific perishable foods help prolong product quality.
- *Future expansion.*—Facilities must be planned so they can be expanded, or otherwise they may soon become obsolete. Expansion needs are estimated, but they are based on expected growth rates of various businesses or individual firms. Planning for the expansion of refrigerated areas is of primary concern because of insulation requirements.
- *Supervision and control.*—The amount of supervising required, including the labor force to be directed and the area to be serviced, should be considered in designing the interior arrangement. The supervisor must keep waste, deterioration, and pilferage at a minimum and exert maximum control over the employees.
- *Safety and comfort of employees.*—Adequate lighting, temperature control, and welfare facilities should be planned for the comfort of employees. A complete safety program including such features as protective guards on materials-handling equipment, traffic signs strategically located, planned passageways for foot traffic, and fire preventive measures should be incorporated into the layout.

Recommended Handling Systems

To achieve maximum economy from new facilities, efficient internal handling operations are necessary. A palletized handling system would meet the requirements of most firms for moving and storing packaged products. To make full use of the storage space, adjustable pallet racks three-tiers high are recommended. Each vertical rack support should have a 4- by 5-inch metal base plate to act as a weight distributor. For greater density of storage, drive-in and drive-through pallet racks are suggested instead of conventional pallet racks. Adjustable, clamp-type racks are recomended because they are easy to assemble and disassemble and offer flexible shelf height. The bottom tier of pallets should be used for product display and selection, and the upper tiers for replacement and storage. A stacking pattern for each item to be palletized should be devised. Interlocking patterns that allow air circulation through the load for nonfrozen refrigerated items are necessary. Stacking heights on pallets will vary with the commodity and the size of package and generally will be determined by the stability of the load and the ability of the bottom layer to withstand the load above it.

For quantities too small to palletize, adjustable storage shelves are suggested.

Large-volume wholesalers should use forklift trucks to transport pallet loads. These trucks should be equipped with overhead guards and load backrests and should be powered by batteries. The load capacity of the forklift truck should be determined by the largest weight that it will be required to transport. Narrow-aisle, straddle-forklift trucks would be satisfactory for relatively short transport distances, but the heavier duty counter-balance-forklift trucks would be more satisfactory for longer distances. Patience and skill should be exerted in training forklift operators. Good training is certain to pay dividends in shorter operating hours and in correct care of products and equipment.

Planning should include space and equipment sufficient to absorb a projected increase in the firm's volume. This kind of planning will provide long range economic advantage in a competitive industry such as the food industry.

Four-wheel handtrucks are recommended for small-volume wholesalers for assembling orders and serving the "cash and carry" customer. For larger volume wholesalers who select orders in larger lots, mechanized equipment should be used.

These recommendations are general and will vary from one firm to another, depending on each firm's volume of business and type of operation. Firms handling small volumes would not need to use power equipment for handling operations; instead, they could use semilive skids and pallet jacks. Other small-volume wholesalers could form equipment ownership pools or rent equipment to hold down the initial investment costs. Large-volume wholesalers might employ more sophisticated mechanized operations, such as automatic tow-tractor systems with four-wheel handtrucks programed to certain areas for order selection and loading.

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